



AGENDA

PUBLIC WORKS COMMITTEE MEETING

April 6, 2020 | 5:30 pm

Wastewater Treatment Plant 26729 98th Drive NW

due to Covid-19 please call 360-454-5219 to attend via conference call

1. First Review 6-year TIP 2021-2026
2. 297 Zone Knittle Reservoir II Project Update: Coating

Discussion Items:

- BHC Task Order for Pioneer Hwy Sanitary Upgrade
Phase 2 – Lower Pioneer Hwy Interceptor



**CITY OF STANWOOD
PUBLIC WORKS COMMITTEE
AGENDA STAFF REPORT**

ITEM: 1

DATE: April 6, 2020

SUBJECT: Six-Year Transportation Improvement Plan (TIP) 2021-2026

CONTACT PERSON: Kevin Hushagen, Public Works Director

ATTACHMENTS: A – RCW 35.77.010
B – Map of Projects
C – Project Cost Spreadsheet
D – CIP 2020-2025
E – 20 year Comp Plan Transportation Cost Estimates

ISSUE

The issue in front of the public works committee is to review the current Six-Year TIP 2020-2025 and make recommendations for the 2021-2026 Six-Year TIP.

SUMMARY STATEMENT

As required by RCW 35.77.010 the City of Stanwood is required to prepare and adopt a comprehensive transportation improvement plan (TIP) by July of each year for the ensuing six calendar years. In addition, the City of Stanwood's Six-Year TIP is required to be consistent with the adopted comprehensive plan and shall be filed with the Washington Department of Transportation as well as the Puget Sound Regional Council.

The purpose of the comprehensive transportation improvement plan is to assure that each city and town shall perpetually have available advanced plans looking to the future for not less than six years as a guide in carrying out a coordinated transportation program. The approved plan may at any time be revised by a majority vote of the council, but only after a public hearing(s) have been notice and held.

DISCUSSION

In 2015, the city comprehensive plan was adopted; Transpo Group developed the transportation element of the plan. As part of the transportation element a 20 year look ahead and forecast is made and adopted in that plan. The 6 year TIP is to create a more defined and attainable 6 year plan for adoption annually to be in line with finances and needs of the City while being consistent with the comprehensive plan. Projects seeking grant or outside funding need to be identified on the 6 year TIP.

The following table is a summary of changes that will be made to the 2021-2026 TIP, recommendations made by the Public Works Committee will also be added to the table.

SUMMARY OF CHANGES FOR 2021-2026

STREET PROJECTS	UPDATE	REASON
90 th Ave NW and Viking Way	REMOVED	Will be completed in 2020
SR532 Flood Berm and Bike/Pedestrian Path	REMOVED	Will be completed in 2020
276 th Street Overlay and ADA Improvement	REMOVED	Will be completed in 2020
272 nd St. NW Reconstruction & Widening	REMOVED	Developer will construct a big portion of this area during High School Remodel
284 th St NW Improvement: 68 th Ave NW to 80 th Ave NW	PROJECT AREA	Update to: 80 th Ave NW east to city limits
SR532 Ovenell Park Entrance Intersection	PROJECT NAME AND AREA	SR532 Ovenell Park Entrance and 106 th Ave Bypass Roundabout: 276 th Street from 102 nd Ave to 106 th Ave to SR532
101 st Ave NW Reconstruction and Overlay	PROJECT AREA	Between 270th St. 274th St and 271st St
270 th St and 271 st St Improvements and mini roundabouts	NEW PROJECT	From 84 th Ave to 102 nd Ave

SIDEWALK PROJECTS	UPDATE	REASON
102 ND Ave NW	REMOVE	Not enough room for sidewalk
272 nd St NW	PROJECT AREA CORRECTION	72nd Ave to 76th Dr. to 78th Ave.
92 nd Ave NW: 271 st St NW to 272 nd St NW	PROJECT DESCRIPTION	Update to: Widen street, add curb, gutter and sidewalk panels to the west side of 92 nd Ave.
273 rd Pl NW 100 th Ave – 102 nd Ave	PROJECT AREA CORRECTION	Add sidewalk to the north south side of 273 rd Pl
72 nd Ave NW	PROJECT AREA AND DESCRIPTION	Include curb, gutter and construct missing sidewalk panels from 268th 272nd St – 276th St

TRAIL PROJECTS	UPDATE	REASON
Heritage Park Loop Trail	REMOVE	This is a major park remodel
WWTP Loop Trail	PROJECT NAME	Stanwood Port Susan Trail

RCW 35.77.010

**Perpetual advanced six-year plans for
coordinated transportation program
expenditures — Non-motorized
transportation — Railroad right-of-way.**

(1) The legislative body of each city and town, pursuant to one or more public hearings thereon, shall prepare and adopt a comprehensive transportation program for the ensuing six calendar years. If the city or town has adopted a comprehensive plan pursuant to chapter [35.63](#) or [35A.63](#) RCW, the inherent authority of a first-class city derived from its charter, or chapter [36.70A](#) RCW, the program shall be consistent with this comprehensive plan. The program shall include any new or enhanced bicycle or pedestrian facilities identified pursuant to RCW [36.70A.070](#)(6) or other applicable changes that promote non-motorized transit.

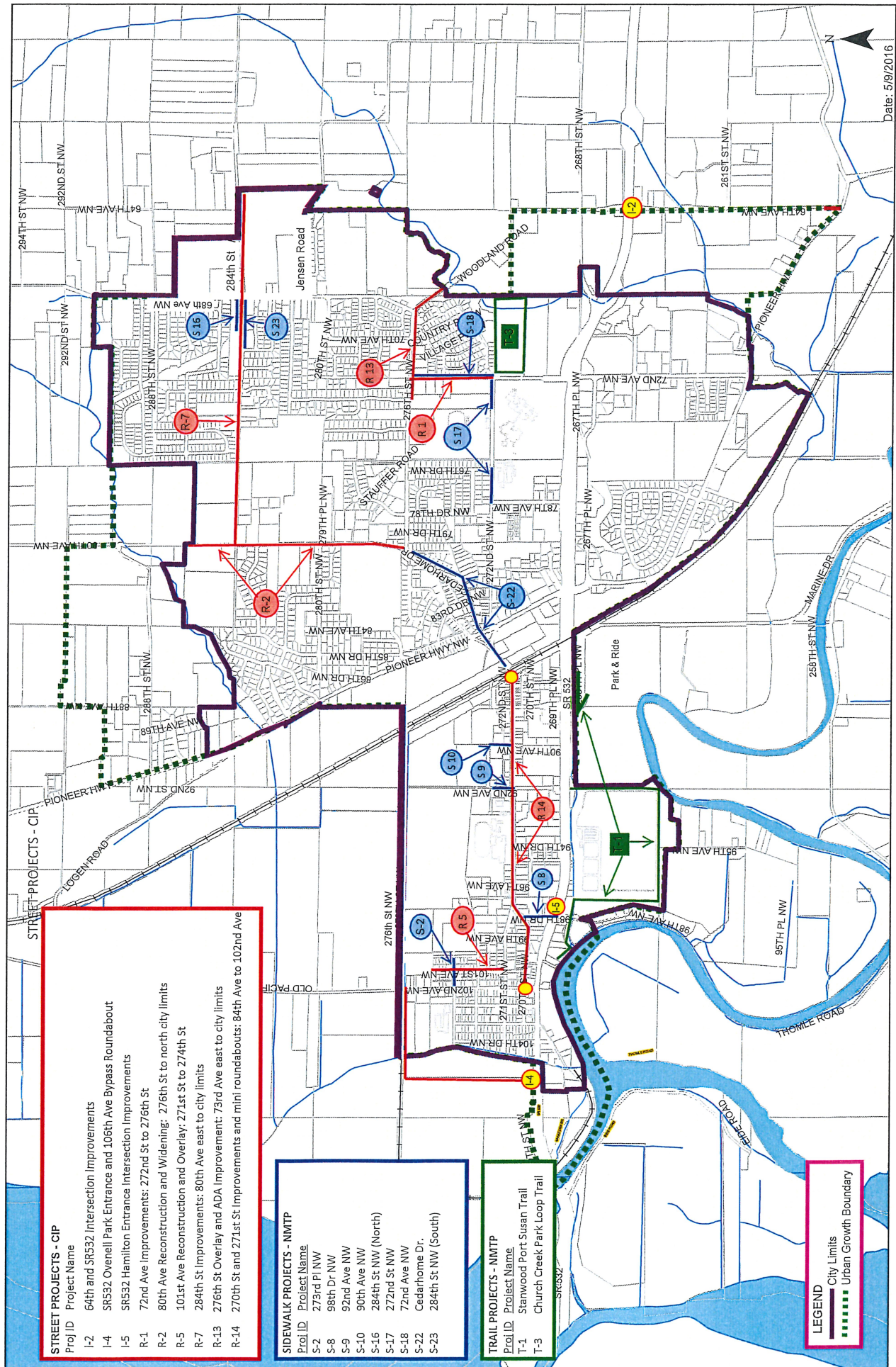
The program shall be filed with the secretary of transportation not more than thirty days after its adoption. Annually thereafter the legislative body of each city and town shall review the work accomplished under the program and determine current city transportation needs. Based on these findings each such legislative body shall prepare and after public hearings thereon adopt a revised and extended comprehensive transportation program before July 1st of each year, and each one-year extension and revision shall be filed with the secretary of transportation not more than thirty days after its adoption. The purpose of this section is to assure that each city and town shall perpetually have available advanced plans looking to the future for not less than six years as a guide in carrying out a coordinated transportation program. The program may at any time be revised by a majority of the legislative body of a city or town, but only after a public hearing.

The six-year plan for each city or town shall specifically set forth those projects and programs of regional significance for inclusion in the transportation improvement program within that region.

(2) Each six-year transportation program forwarded to the secretary in compliance with subsection (1) of this section shall contain information as to how a city or town will expend its moneys, including funds made available pursuant to chapter [47.30](#) RCW, for non-motorized transportation purposes.

(3) Each six-year transportation program forwarded to the secretary in compliance with subsection (1) of this section shall contain information as to how a city or town shall act to preserve railroad right-of-way in the event the railroad ceases to operate in the city's or town's jurisdiction.

[2005 c 360 § 4. Prior: 1994 c 179 § 1; 1994 c 158 § 7; 1990 1st ex.s. c 17 § 59; 1988 c 167 § 6; 1984 c 7 § 23; 1977 ex.s. c 317 § 7; 1975 1st ex.s. c 215 § 1; 1967 ex.s. c 83 § 27; 1965 c 7 § [35.77.010](#); prior: 1961 c 195 § 2.]



City of Stanwood Six Year Transportation Improvement Plan (2021-2026)

Priority No. / Proj No. need to revise	Transportation Capital Project	Funding	2021	2022	2023	2024	2025	2026	Fund Total
3 R-7	284th St Improvements	Other Grant Funding			\$ 622,000				\$ 622,000
	PE \$	1,244,000							\$ -
	ROW \$	622,000							\$ -
	CN \$	4,354,000							\$ -
	TOTAL \$	6,220,000							\$ -
	Comments: Reconstruction and widen 284th Street from 80th St NW east to city limits	PSRC/STP Funding							\$ -
	Developer Funded								\$ -
	Local - City	\$ 500,000	\$ 744,000						\$ 5,598,000
		\$ 500,000	\$ 744,000	\$ 622,000	\$ 4,354,000	\$ -	\$ -	\$ -	\$ 6,220,000
	SUBTOTAL THIS PROJECT								
4 S-9	92nd Ave NW	Other Grant Funding							\$ -
	PE \$	50,000							\$ -
	ROW \$	50,000							\$ -
	CN \$	100,000							\$ -
	TOTAL \$	200,000							\$ -
	Comments: West side between north of 271st and 272nd	PSRC/STP Funding							\$ -
	Developer Funded								\$ -
	Local - City	\$ 200,000							\$ 200,000
		\$ 200,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 200,000
	SUBTOTAL THIS PROJECT								
5 S-18	Sidewalk: 72nd Ave NW	Other Grant Funding							\$ -
	PE \$	25,000							\$ -
	ROW \$	20,000							\$ -
	CN \$	250,000							\$ -
	TOTAL \$	295,000							\$ -
	Comments: West side between 268th St and 276th St	PSRC/STP Funding							\$ -
	Developer Funded								\$ -
	Local - City	\$ 45,000	\$ 250,000						\$ 295,000
		\$ 45,000	\$ 250,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 295,000
	SUBTOTAL THIS PROJECT								
6 R-13	276th Street Overlay and ADA Improvement	Other Grant Funding							\$ -
	PE \$	60,000							\$ -
	ROW \$	-							\$ -
	CN \$	350,000							\$ 350,000
	TOTAL \$	410,000							\$ -
	Comments: 73rd Ave to east City Limits	PSRC/STP Funding							\$ -
	Developer Funded								\$ -
	Local - City	\$ 60,000							\$ 60,000
		\$ 410,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 410,000
	SUBTOTAL THIS PROJECT								
7 I-4	SR532 Ovenell Park Entrance and 106th Ave Bypass Roundabout	Other Grant Funding							\$ 3,170,000
	PE \$	330,000							\$ -
	ROW \$	700,000							\$ -
	CN \$	2,470,000							\$ -
	TOTAL \$	3,500,000							\$ 330,000
	Comments: 276th St from 102nd Ave to 106th Ave to SR532	PSRC/STP Funding							\$ -
	Developer Funded								\$ -
	Local - City	\$ 330,000							\$ -
		\$ -	\$ 330,000	\$ 700,000	\$ 2,470,000	\$ -	\$ -	\$ -	\$ 3,500,000
	SUBTOTAL THIS PROJECT								

City of Stanwood Six Year Transportation Improvement Plan (2021-2026)

Priority No. / Proj No. need to revise	Transportation Capital Project	Funding	2021	2022	2023	2024	2025	2026	Fund Total
8 S-2	Sidewalk: 273rd PI NW PE \$ 28,742 TBD Funds ROW \$ 60,510 WSDOT Funds CN \$ 83,200 TIB Grant Funding TOTAL \$ 172,452 PSRC/STP Funding Comments: Add sidewalk to the south side between 100th Ave and 102nd Ave	Other Grant Funding Local - City SUBTOTAL THIS PROJECT	\$ 172,452 \$ 172,452	\$ - \$ -	\$ - \$ -	\$ - \$ -	\$ - \$ -	\$ - \$ -	\$ 172,452 \$ 172,452
9 R-5	101st Ave Reconstruction & Overlay PE \$ 660,000 TBD Funds ROW \$ 1,980,000 WSDOT Funds CN \$ 1,980,000 TIB Grant Funding TOTAL \$ 2,640,000 PSRC/STP Funding Comments: 101st Ave between 271st St and 274th St.	Other Grant Funding - CDBG TBD Funds WSDOT Funds TIB Grant Funding PSRC/STP Funding Developer Funded Local - City SUBTOTAL THIS PROJECT	\$ 660,000 \$ 660,000	\$ 1,980,000 \$ 1,980,000	\$ - \$ -	\$ - \$ -	\$ - \$ -	\$ - \$ -	\$ 2,640,000 \$ 2,640,000
10 R-1	Sidewalk: 72nd Ave Improvements PE \$ 20,000 TBD Funds ROW \$ 250,000 WSDOT Funds CN \$ 250,000 TIB Grant Funding TOTAL \$ 270,000 PSRC/STP Funding Comments: 272nd St - 276th St add curb and gutters, and construct sidewalk panels at missing locations	Other Grant Funding - SRTS TBD Funds WSDOT Funds TIB Grant Funding PSRC/STP Funding Developer Funded Local - City SUBTOTAL THIS PROJECT	\$ - \$ -	\$ 270,000 \$ 270,000	\$ - \$ -	\$ - \$ -	\$ - \$ -	\$ - \$ -	\$ 270,000 \$ 270,000
12 I-5	SR532 Hamilton Entrance Intersection PE \$ 525,000 TBD Funds ROW \$ 275,000 WSDOT Funds CN \$ 2,700,000 TIB Grant Funding TOTAL \$ 3,500,000 PSRC/STP Funding Comments: SR532 to 98th Dr.	Other Grant Funding TBD Funds WSDOT Funds TIB Grant Funding PSRC/STP Funding Developer Funded Local - City SUBTOTAL THIS PROJECT	\$ - \$ -	\$ 525,000 \$ 525,000	\$ 275,000 \$ 275,000	\$ 2,700,000 \$ 2,700,000	\$ - \$ -	\$ - \$ -	\$ 3,500,000 \$ 3,500,000
13 S-10	Sidewalk: 90th Ave NW PE \$ 20,814 TBD Funds ROW \$ 43,820 WSDOT Funds CN \$ 60,250 TIB Grant Funding TOTAL \$ 124,884 PSRC/STP Funding Comments: Add sidewalk to west side of 90th between north of 271st St and 272nd St	Other Grant Funding TBD Funds WSDOT Funds TIB Grant Funding PSRC/STP Funding Developer Funded Local - City SUBTOTAL THIS PROJECT	\$ - \$ -	\$ 525,000 \$ 525,000	\$ 275,000 \$ 275,000	\$ 2,700,000 \$ 2,700,000	\$ - \$ -	\$ - \$ -	\$ 124,884 \$ 124,884

City of Stanwood Six Year Transportation Improvement Plan (2021-2026)

Priority No. / Proj No. need to revise	Transportation Capital Project	Funding	2021	2022	2023	2024	2025	2026	Fund Total
14 S-16	Sidewalk: 284th St NW PE \$ 30,980 TBD Funds ROW \$ 65,220 WSDOT Funds CN \$ 89,680 TIB Grant Funding TOTAL \$ 185,880 PSRC/STP Funding Comments: Add sidewalk on west side between 68th St to 69th St	Other Grant Funding TBD Funds WSDOT Funds TIB Grant Funding PSRC/STP Funding Developer Funded Local - City SUBTOTAL THIS PROJECT	\$ -	\$ -	\$ 185,880	\$ -	\$ -	\$ -	\$ 185,880
15 S-17	Sidewalk: 272nd St NW PE \$ 20,000 TBD Funds ROW \$ 250,000 WSDOT Funds CN \$ 250,000 TIB Grant Funding TOTAL \$ 270,000 PSRC/STP Funding Comments: North side between 72nd Ave and West of 78th Ave.	Other Grant Funding TBD Funds WSDOT Funds TIB Grant Funding PSRC/STP Funding Developer Funded Local - City SUBTOTAL THIS PROJECT	\$ -	\$ 20,000	\$ 250,000	\$ -	\$ -	\$ -	\$ 270,000
16 R-2	80th Ave Reconstruction & Widening PE \$ 1,406,000 TBD Funds ROW \$ 703,000 WSDOT Funds CN \$ 4,921,000 TIB Grant Funding TOTAL \$ 7,030,000 PSRC/STP Funding Comments: between approx. 276th St to north city limits	Other Grant Funding TBD Funds WSDOT Funds TIB Grant Funding PSRC/STP Funding Developer Funded Local - City SUBTOTAL THIS PROJECT	\$ -	\$ 20,000	\$ 250,000	\$ -	\$ -	\$ -	\$ 270,000
17 I-2	64th and SR532 Intersection PE \$ 525,000 TBD Funds ROW \$ 2,975,000 WSDOT Funds CN \$ 2,975,000 TIB Grant Funding TOTAL \$ 3,500,000 PSRC/STP Funding Comments: 64th & SR532	Other Grant Funding TBD Funds WSDOT Funds TIB Grant Funding PSRC/STP Funding Developer Funded Local - City SUBTOTAL THIS PROJECT	\$ 1,406,000	\$ 5,624,000	\$ -	\$ -	\$ -	\$ -	\$ 7,030,000
18 S-8	Sidewalk: 98th Dr. NW PE \$ 20,540 TBD Funds ROW \$ 43,240 WSDOT Funds CN \$ 59,460 TIB Grant Funding TOTAL \$ 123,240 PSRC/STP Funding Comments: Add sidewalk on east side of Dr. between SR532 and 270th St	Other Grant Funding TBD Funds WSDOT Funds TIB Grant Funding PSRC/STP Funding Developer Funded Local - City SUBTOTAL THIS PROJECT	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,500,000	\$ 3,500,000
			\$ -	\$ -	\$ 123,240	\$ -	\$ -	\$ -	\$ 123,240
			\$ -	\$ -	\$ 123,240	\$ -	\$ -	\$ -	\$ 123,240

City of Stanwood Six Year Transportation Improvement Plan (2021-2026)

Priority No. / Proj No. need to revise	Transportation Capital Project	Funding	2021	2022	2023	2024	2025	2026	Fund Total
19 S-23	Sidewalk: 284th St NW	Other Grant Funding							
	PE \$ 30,980	TBD Funds							\$ -
	ROW \$ 65,220	WSDOT Funds							\$ -
	CN \$ 89,680	TIB Grant Funding							\$ -
	TOTAL \$ 185,880	PSRC/STP Funding							\$ -
	Comments: South side between 68th and east of 70th Ave	Developer Funded			\$ 185,880				\$ -
		Local - City	\$ -	\$ -	\$ 185,880	\$ -	\$ -	\$ -	\$ 185,880
		SUBTOTAL THIS PROJECT	\$ -	\$ -	\$ 185,880	\$ -	\$ -	\$ -	\$ 185,880
xx R-14	270th St and 271st St Improvements with mini roundabouts	Other Grant Funding							
	PE \$ 200,000	TBD Funds						\$ 3,000,000	\$ 3,000,000
	ROW	WSDOT Funds							\$ -
	CN \$ 3,000,000	TIB Grant Funding							\$ -
	TOTAL \$ 3,200,000	PSRC/STP Funding							\$ -
	Comments: from 84th to 102nd Ave, widen sidewalk	Developer Funded							\$ -
		Local - City	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 200,000	\$ 200,000
		SUBTOTAL THIS PROJECT	\$ -	\$ -	\$ -	\$ -	\$ 714,612	\$ 3,200,000	\$ 3,200,000
21	Sidewalk: Cedarhome Drive NW	Other Grant Funding							
	PE \$ 119,102	TBD Funds					\$ 714,612		\$ 714,612
	ROW \$ 250,740	WSDOT Funds							\$ -
	CN \$ 344,770	TIB Grant Funding							\$ -
	TOTAL \$ 714,612	PSRC/STP Funding							\$ -
	Comments: South Side between 271st St and 276th St	Developer Funded							\$ -
		Local - City	\$ -	\$ -	\$ -	\$ -	\$ 714,612	\$ -	\$ -
		SUBTOTAL THIS PROJECT	\$ -	\$ -	\$ -	\$ -	\$ 714,612	\$ -	\$ 714,612
TOTAL PROJECT COST ESTIMATE									
			\$ 3,393,452	\$ 9,743,000	\$ 2,342,000	\$ 9,648,884	\$ 714,612	\$ 6,700,000	\$ 32,541,948
	Other Grant Funding		\$ 660,000	\$ 2,525,000	\$ 1,847,000	\$ 5,170,000	\$ 714,612	\$ 3,000,000	\$ 13,916,612
	TBD Funds		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	WSDOT Funds		\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,500,000	\$ 3,500,000
	TIB Grant Funding		\$ 350,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 350,000
	PSRC/STP Funding		\$ -	\$ 330,000	\$ -	\$ -	\$ -	\$ -	\$ 330,000
	Developer Funded		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Local - City		\$ 2,383,452	\$ 6,888,000	\$ 495,000	\$ 4,478,884	\$ -	\$ 200,000	\$ 14,445,336
	TOTAL PROJECT COST ESTIMATE		\$ 3,393,452	\$ 9,743,000	\$ 2,342,000	\$ 9,648,884	\$ 714,612	\$ 6,700,000	\$ 32,541,948

Street Construction Fund (103)		Budget 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024	Forecast 2025
Beginning Cash & Investments		\$300,000	\$167,000	\$199,220	\$47,870	\$35,688	\$103,341
Revenues	Source totals						
Transfer in (Impact Fees 102)	\$1,350,000	\$250,000	\$400,000	\$400,000	\$100,000	\$100,000	\$100,000
Transfer in (Transportation Sales Tax 108)	\$1,940,523	\$300,000	\$309,000	\$318,270	\$327,818	\$337,653	\$347,782
Unidentified Grants—Sidewalk Projects	\$1,300,000		\$200,000	\$300,000	\$600,000	\$200,000	
Unidentified Grant (284th St.)	\$1,366,000			\$744,000	\$622,000		
Unidentified Grant (SR 532 Ovenell entrance)	\$2,500,000			\$1,000,000	\$1,500,000		
CDBG Grant (101st Av. Reconstruction)	\$2,640,000		\$660,000	\$132,000	\$1,848,000		
Developer Funding (284th Improvements)	\$4,354,000	\$500,000				\$3,854,000	
Developer Funded (276th Sidewalk)	\$200,000		\$200,000				
Unidentified Grant (272nd St. Sidewalk (72nd - 76th)	\$533,436		\$533,436				
Developer Funded (80th Ave Reconstruction)	\$7,030,000			\$2,109,000	\$4,921,000		
WSDOT Funded (SR 532 & 64th)	\$3,500,000			\$3,500,000			
WSDOT Funded (Hamilton Roundabout)	\$3,500,000				\$3,500,000		
Unidentified Grant (270th St NW Curbs 98th - 102nd)	\$735,828					\$735,828	
Unidentified Grant (Sidewalk Cedarhome Dr. 271st-276th)	\$714,612						\$714,612
RTCC Grant (Viking Way) (secured)	\$1,869,500	\$1,437,000	\$173,000	\$259,500			
RTCC Grant (Viking Way) (potential)	\$1,000,000				\$1,000,000		
State Direct Appropriation (Viking Way)	\$500,000	\$500,000					
TIB Grant (276th Overlay)	\$240,000	\$240,000					
TIB Grant (72nd Overlay)	\$450,000		\$450,000				
TIB Grant (68th Overlay)	\$450,000			\$450,000			
WSDOT grant SR532 Corridor Access Study	\$10,000	\$10,000					
Total Resources (includes 2020 BNC)	\$36,483,899	\$3,537,000	\$3,092,436	\$9,411,990	\$14,466,688	\$5,263,169	\$1,265,735
Expenditures:	Project Cost						
SR532 Corridor Access Study	\$10,000	\$10,000					
SR532/Ovenell Access *	\$3,500,000		\$330,000	\$700,000	\$2,470,000		
SR532/98th Hamilton Access *	\$3,500,000				\$3,500,000		
SR532 & 64th Roundabout *	\$3,500,000			\$3,500,000			
Viking Way / 90th *	\$2,000,000	\$2,000,000					
Viking Way Phase Two	\$1,500,000		\$200,000	\$300,000	\$1,000,000		
284th St Improvements: 80th Ave to City Limits*	\$6,220,000	\$500,000		\$744,000	\$622,000	\$4,354,000	
276th St.Overlay and ADA * (80th to E. city limits)	\$270,000	\$270,000					
Pavement Inventory	\$50,000	\$50,000					
271st Street (94th to Viaduct) seal coat	\$250,000	\$250,000					
90th Ave NW (271st to 272nd) *	\$124,884		\$124,884				
72nd Avenue SR532 to Pioneer Hwy Overlay	\$500,000		\$500,000				
101st Ave Reconstruction & Overlay *	\$2,640,000		\$660,000	\$132,000	\$1,848,000		
68th Avenue Overlay	\$500,000			\$500,000			
80th Ave Reconstruction * (276th to 288th)	\$7,030,000			\$2,109,000	\$4,921,000		
270th St. Redesign Curbs 98th to 102nd *	\$735,828					\$735,828	
Summarized Sidewalk Projects*	\$3,252,064	\$220,000	\$1,008,332	\$1,309,120	\$0	\$0	\$714,612
Miscellaneous Sidewalk/Trail Installation/Repairs	\$420,000	\$70,000	\$70,000	\$70,000	\$70,000	\$70,000	\$70,000
Total Expenditures	\$36,002,776	\$3,370,000	\$2,893,216	\$9,364,120	\$14,431,000	\$5,159,828	\$784,612
Ending Cash & Investments		\$167,000	\$199,220	\$47,870	\$35,688	\$103,341	\$481,123

Detailed 2020 - 2025 Sidewalk Projects		Budget 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024	Forecast 2025
276th St. Sidewalk (North side 70th - 72nd)	\$250,000	\$50,000	\$200,000				
92nd Ave NW -(Sidewalk in front of bowling alley)	\$150,000	\$150,000					
72nd Ave Sidewalk * (272nd to 276th)	\$270,000	\$20,000	\$250,000				
273rd Pl. NW Sidewalk *	\$172,452		\$172,452				
272nd St. Sidewalk (72nd Ave. to Pioneer Hwy)*	\$1,200,000		\$200,000	\$1,000,000			
284th St Sidewalk * (W. side 68th St. to 69th St.)	\$185,880		\$185,880				
98th Dr. Sidewalk 268th to 270th *	\$123,240			\$123,240			
284th St Sidewalk * (So. Side between 68th & 69th)	\$185,880			\$185,880			
Sidewalk Cedarhome Dr. 271st-276th *	\$714,612						\$714,612

Project:	Stanwood-Port Susan Trail							
Capital Budget	Previous Years	2020	2021	2022	2023	2024	2025	Project Total
Sources/Funding	Appropriated to Date	Budget	Projection	Projection	Projection	Projection	Projection	Projection
General Funds		\$ 377,000		\$ 5,000				\$ 382,000
Unidentified Funds					\$ 300,000	\$ 1,700,000	\$ 411,750	\$ 2,411,750
Local Funds-Impact Fees								\$ -
Local Funds-REET1								\$ -
Local Funds-REET2	\$ 71,710							\$ 71,710
Loan- Snoco		\$ 73,000						\$ 73,000
Total Sources	\$ 71,710	\$ 450,000	\$ -	\$ 5,000	\$ 300,000	\$ 1,700,000	\$ 411,750	\$ 2,938,460
Uses/Costs	Appropriated to Date	Budget	Projection	Projection	Projection	Projection	Projection	Projection
Planning and Design-NMTP	\$ 71,710							\$ 71,710
Berm Trail		\$ 200,000						\$ 200,000
Design & Permit Port Susan Ph 2		\$ 250,000						
Planning-prepare RCO Grant App				\$ 5,000				
Phase 3 Construction (Public Works Loop)					\$ 300,000	\$ 1,700,000		
Phase 3 Construction (Church Creek Loop)	\$ -						\$ 411,750	\$ 411,750
Total Uses	\$ 71,710	\$ 450,000	\$ -	\$ 5,000	\$ 300,000	\$ 1,700,000	\$ 411,750	\$ 2,938,460
Capital Sources Over (Under) Uses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Type	Project ID	Project Name	Total Cost Estimate	TIF Eligible?	TIF Eligible Percent ⁽ⁱ⁾	TIF Eligible Cost	Potential Grant Percent ^(a)	Potential Grants	General City Transportation Funds Percent	General City Transportation Funds Cost	Relative Priority	Time Frame
New Roadway	N-1	Viking Way 88th Avenue NW to 92nd Avenue NW	\$ 5,580,000	Partial	50%	\$2,790,000	50%	\$2,790,000	0%	\$0	High	Short
New Roadway	N-2	90th Avenue NW SR 532 to 271st Street NW	\$ 5,410,000	Partial	50%	\$2,705,000	50%	\$2,705,000	0%	\$0	High	Short
New Roadway	N-3	Downtown to East Residential Connectors	\$ 80,000	Yes	100%	\$80,000	0%	\$0	0%	\$0	Medium	Short
Pedestrian Network	P-1	Camano Street SR 532 to 271st Street NW	\$ 380,000	Partial	10%	\$38,000	0%	\$0	90%	\$342,000	High	Mid
Pedestrian Network	P-2	276th Street NW 76th Drive NW to 68th Avenue NW	\$ 780,000	Partial	10%	\$78,000	0%	\$0	90%	\$702,000	Medium	Long
Pedestrian Network	P-3	102nd Avenue NW 276th Street NW to SR 532	\$ 470,000	Partial	10%	\$47,000	0%	\$0	90%	\$423,000	Medium	Long
Pedestrian Network	P-4	Cedarhome South 276th Street NW to Florence Road	\$ 400,000	Partial	10%	\$40,000	0%	\$0	90%	\$360,000	Medium	Long
Pedestrian Network	P-5	276th Street NW (Lover's Lane) 92nd Avenue NW to 102nd Avenue NW	\$ 510,000	Partial	10%	\$51,000	0%	\$0	90%	\$459,000	Medium	Long
Bicycle Network	B-1	Pioneer Highway 288th Street NW to 72nd Avenue NW (Lindstrom Road)	\$ 5,200,000	Partial	10%	\$520,000	20%	\$1,040,000	70%	\$3,640,000	Medium	Mid
Bicycle Network	B-2	267th Street NW / 268th Street NW Pioneer Highway to 72nd Avenue NW (Lindstrom Road)	\$ 6,290,000	Partial	10%	\$629,000	20%	\$1,258,000	70%	\$4,403,000	Medium	Long
Bicycle Network	B-3	Cedarhome Drive 88th Avenue NW to 276th Street NW	\$ 3,460,000	Partial	10%	\$346,000	20%	\$692,000	70%	\$2,422,000	Medium	Long
Bicycle Network	B-4	271st St NW SR 532 (270th Street NW) to 88th Avenue NW	\$ 320,000	Partial	10%	\$32,000	0%	\$0	90%	\$288,000	Medium	Long
Bicycle Network	B-5	92nd Avenue NW SR 532 to 276th Street NW	\$ 2,660,000	Partial	10%	\$266,000	20%	\$532,000	70%	\$1,862,000	Medium	Long
Bicycle Network	B-6	276th Street NW (Lover's Lane) 92nd Avenue NW to 102nd Avenue NW	\$ 3,120,000	Partial	10%	\$312,000	0%	\$0	90%	\$2,808,000	Medium	Long
Bicycle Network	B-7	Rails to Trails Railroad line - Saratoga Dr to Lane Rd	\$ 1,110,000	Partial	10%	\$111,000	0%	\$0	90%	\$999,000	Medium	Long
Other Agency Improvements	O-1	Old Pacific Highway	n/a	No	0%	-	0%	-	0%	-	n/a	n/a
Other Agency Improvements	O-2	Pioneer Highway North	n/a	No	0%	-	0%	-	0%	-	n/a	n/a
Other Agency Improvements	O-3	268th Street NW	n/a	No	0%	-	0%	-	0%	-	n/a	n/a
Other Agency Improvements	O-4	Pioneer Highway South	n/a	No	0%	-	0%	-	0%	-	n/a	n/a
Other Agency Improvements	O-5	Marine Drive	n/a	No	0%	-	0%	-	0%	-	n/a	n/a
Citywide Programs	C-1	Small Capital Projects	\$ 2,050,000	No	0%	\$0	0%	\$0	100%	\$2,050,000	High	Ongoing
Citywide Programs	C-2	Maintenance & Operations	\$ 10,025,000	No	0%	\$0	0%	\$0	100%	\$10,025,000	High	Ongoing

Type	Project ID	Project Name	Total Cost Estimate	TIF Eligible?	TIF Eligible Percent ⁽¹⁾	TIF Eligible Cost	Potential Grant Percent ⁽²⁾	Potential Grants	General City Transportation Funds Percent	General City Transportation Funds Cost	Relative Priority	Time Frame
Intersection / Operations	I-1	Viking Way / 90th Avenue NW Intersection	\$ 970,000	Partial	75%	\$727,500	0%	\$0	25%	\$242,500	High	Short
Intersection / Operations	I-2	SR 532 / 64th Ave N Intersection	\$ 1,160,000	Partial	50%	\$580,000	0%	\$0	50%	\$580,000	Medium	Mid
Intersection / Operations	I-3	272nd Street NW / 72nd Ave N (Lindstrom Road) Intersection	\$ 360,000	No	0%	\$0	0%	\$0	100%	\$360,000	High	Short
Intersection / Operations	I-4	SR 532 / 270th Street NW Intersection	\$ 110,000	Partial	50%	\$55,000	0%	\$0	50%	\$55,000	Medium	Mid
Intersection / Operations	I-5	SR 532 / 98th Drive NW Intersection	\$ 1,400,000	Partial	50%	\$700,000	0%	\$0	50%	\$700,000	Medium	Mid
Widening / Reconstruction	R-1	72nd Avenue NW Improvements 268th Street NW to 276th Street NW	\$ 5,280,000	Partial	30%	\$1,584,000	50%	\$2,640,000	20%	\$1,056,000	High	Short
Widening / Reconstruction	R-2	80th Avenue NW Improvements 276th Street NW to 288th Street NW	\$ 7,030,000	Partial	30%	\$2,109,000	50%	\$3,515,000	20%	\$1,406,000	High	Short
Widening / Reconstruction	R-3	68th Avenue Reconstruction 280th Street to 288th Street	\$ 4,300,000	Partial	30%	\$1,290,000	50%	\$2,150,000	20%	\$860,000	High	Short
Widening / Reconstruction	R-4	272nd Street NW Reconstruction 72nd Avenue NW to Pioneer Highway	\$ 8,820,000	Partial	30%	\$2,646,000	50%	\$4,410,000	20%	\$1,764,000	High	Short
Widening / Reconstruction	R-5	101st Avenue NW Reconstruction 270th Street NW to 274th Place NW	\$ 2,640,000	Partial	30%	\$792,000	0%	\$0	70%	\$1,848,000	Medium	Short
Widening / Reconstruction	R-6	270th Street NW Reconstruction 102nd Avenue NW to Camano Street	\$ 12,360,000	Partial	30%	\$3,708,000	50%	\$6,180,000	20%	\$2,472,000	Medium	Short
Widening / Reconstruction	R-7	284th Street NW Improvements 68th Avenue NW to 80th Avenue NW	\$ 6,220,000	Partial	30%	\$1,866,000	50%	\$3,110,000	20%	\$1,244,000	Medium	Short
Widening / Reconstruction	R-8	102nd Avenue NW Overlay SR 532 to 276th Street NW	\$ 310,000	Partial	30%	\$93,000	0%	\$0	70%	\$217,000	Medium	Short
Widening / Reconstruction	R-9	98th Drive NW Reconstruction 288th Street NW to 271st Street NW	\$ 1,920,000	Partial	30%	\$576,000	0%	\$0	70%	\$1,344,000	Low	Long
Widening / Reconstruction	R-10	SR 532 Flood Berm Marine Drive and 92nd Avenue NW	\$ 2,700,000	No	0%	\$0	50%	\$1,350,000	50%	\$1,350,000	High	Short
Widening / Reconstruction	R-11	Pioneer Highway Slide REET 1	\$ 50,000	No	0%	\$0	0%	\$0	100%	\$50,000	Low	Short
Widening / Reconstruction	R-12	Cedarhome Drive Improvements Triangle Drive to 276th Street NW	\$ 250,000	Partial	30%	\$75,000	30%	\$75,000	40%	\$100,000	Low	Mid
Widening / Reconstruction	R-13	288th Street NW Reconstruction 80th Avenue NW to Pioneer Highway	\$ 7,250,000	Partial	30%	\$2,175,000	0%	\$0	70%	\$5,075,000	Low	Mid
Widening / Reconstruction	R-14	64th Avenue NW / Woodland Road SR 532 to 68th Ave NW	\$ 7,250,000	Partial	30%	\$2,175,000	0%	\$0	70%	\$5,075,000	Low	Mid
Widening / Reconstruction	R-15	64th Avenue SR 532 to Pioneer Hwy	\$ 5,720,000	Partial	30%	\$1,716,000	0%	\$0	70%	\$4,004,000	Low	Long



**CITY OF STANWOOD
PUBLIC WORKS COMMITTEE
AGENDA STAFF REPORT**

ITEM NUMBER: 2

DATE: July 1, 2019

SUBJECT: 297 Zone Knittle Reservoir – Change Order

CONTACT PERSON: Shawn Smith, Asst. Public Works Director

ATTACHMENTS:

- A – T-Bailey Scope and Fee
- B – Coating Submittal
- C – Change Order
- D – Contract Amendment – RH2

ISSUE

The issue in front of the Public Works Committee is whether or not to authorize the mayor to sign a change order for the contractor T-Bailey and a contract amendment with RH2 for inspection services for the recoating of the existing steel reservoir and a time extension for the contractor to complete their work.

SUMMARY

T-Bailey is the contractor for the new reservoir and will be coating the reservoir this year. The city has an opportunity to have them coat the existing reservoir at a good price since they are already there.

DISCUSSION

The existing steel reservoir is 18 years old. The coating that keeps the steel from rusting has a 20 year life expectancy. The Capital Improvement Plan (CIP) has this work scheduled for 2023 at a price of \$540,000. This price is for both the inside and outside of the reservoir. The current proposal is just for the outside of the reservoir at a price of \$37,704.82, with a special inspection fee of \$9,085.00. The total to get the reservoir pressure washed and re-coated will be \$46,789.82.

FISCAL IMPACT

The total cost of this change order is \$46,789.82. This will be funded from the water construction fund (422). The water construction fund has a projected ending balance of \$544,395.

COMMITTEE OPTIONS

1. Recommend bringing the 297 Zone Knittle Reservoir Change Order to full council with committee approval.
2. Do not recommend bringing the 297 Zone Knittle Reservoir Change Order to full council with committee approval.

RECOMMENDED MOTION

I MOVE TO DIRECT STAFF TO BRING THE 297 ZONE KNITTLE RESERVOIR CHANGE ORDER TO FULL COUNCIL WITH COMMITTEE APPROVAL.



9628 South Marchs Point Rd., Anacortes, WA 98221
(360) 293-0682 • FAX (360) 293-3893
WWW.TBAILEY.COM

ATTACHMENT - A

March 2, 2020

RH2 Engineering
4164 Meridian St STE 302
Bellingham, WA. 98226

Attn: Dan Burwell

Re: Coatings and Seal Welding Existing 1 MG Reservoir

Mr. Burwell,

Per the City's request, we have prepared the below and attached Change Order Proposals for coating and seal welding the existing 1MG aboveground welded steel water reservoir.

COP 634-02 – Tank Exterior Pressure Wash and Overcoat.
\$37,704.82 (25 Calendar Days)

~~COP 634-04 – Tank Interior Recoating (Full Field Blast and Recoat). Includes T BAILEY to provide a doorsheet for access for manlifts for blasting, painting and inspection purposes.
\$305,571.33 (75 Calendar Days)~~

~~COP 634-05 – Includes Interior roof structural seal welding (plate to plate laps, rafter to plate seams, rafter to support clips and rafter to center column support, etc.), tank interior recoating (full field blast and recoat) and exterior pressure wash and overcoat. Also provided is a new aluminum frost free roof vent per Washington DOH standards (existing roof vent base may become distorted due to the interior seal welding process). Doorsheet will be provided.
\$544,983.16 (125 Calendar Days)~~

Seal Welding:

~~Below provides a brief explanation of the roof interior structural seal welding including the significant long lasting benefits it offers the City and Public. Seal welding the underside of tank roof structure is a relatively new technique being specified on almost all new water tank construction projects, including the new reservoir we are currently building.~~

~~After years of service, moisture condensation begins corroding the non coated steel plate surfaces between roof lap joints and surfaces between roof plate and rafters. Even with proper surface preparation and new coatings application; roofs that are not seal welded will shows immediate signs of rust bleeding after the tank is returned to service. Seal welding of the underside roof support structure promotes a superior and long lasting interior coating system.~~



AISC
CERTIFIED
FABRICATOR



Although the underside of the existing 1 MG tank's roof is in fairly good condition, now would be the best time to perform the seal welding work. After more years of corrosion, the fitting and seal welding of the roof will become increasingly more difficult and thus more expensive to perform. As the rusting and corrosion of the steel worsens, the steel begins to pit and the rafter flanges begin to delaminate. This excessive corrosion creates very difficult welding conditions and will take much longer to perform. If seal welding is not performed in the future, replacement of the entire roof structure could be expected.

T BAILEY has successfully performed seal welding projects for many municipalities and water districts and is highly recommended.

Sincerely,

Ryan Broussard
T BAILEY, INC.



AISC
CERTIFIED
FABRICATOR





City of Stanwood - 297 Zone Knittle Reservoir II

Date: 3/2/2020
COP #: 634-02 Rev1

ADDITIONAL WORK TO THE CONTRACT: Recoat Existing Steel Water Reservoir - Exterior Only

ITEM	DESCRIPTION	QTY	UNITS	LABOR	MAT / INV SERVICES	SUBCONTRACT	EQUIPMENT	TOTAL
1	Exterior Pressure Wash and Overcoat	1	LS			30,145.00		\$ 30,145.00
								\$ -
								\$ -
Mark-Up Rates (WSDOT 1-09.6)								
Labor	29%	SUBTOTAL, Direct additional costs		-	-	30,145.00	-	\$ 30,145.00
Material	21%	MARKUP		-	-	3,617.40	-	\$ 3,617.40
Equipment	21%	SUBTOTAL, Direct additional costs plus markup		-	-	33,762.40	-	\$ 33,762.40
Subcontractor	12%							
CONTRACT TIME EXTENSION:		25	Calendar Days		Liability Insurance		1%	\$ 301.45
					B&O Tax		0.52%	\$ 158.32
					Bond		1%	\$ 306.05
						SUBTOTAL =		\$ 34,528.22
						Sales Tax	9.2%	\$ 3,176.60
COMMENTS:						TOTAL =		\$ 37,704.82
See Submittal #27.0 for Proposed Coatings System								

COMMENTS:

See Submittal #27.0 for Proposed Coatings System



DATE March 2, 2020

277 East Mountain view rd
Camano Island Wa 98282
Phone: 360 454-8445

Bid To: T Bailey, INC.

Project bid Name: Existing tank Stanwood , WA

Prepared by: Rorry studley

comments or special instructions: Coating Applicators powerwash and overcoat specified Tnemec coating system.

Description	AMOUNT
Exterior pressure wash and overcoat only	\$ 30,145.00
TOTAL	\$ 30,145.00

If you have any questions concerning this bid, Contact Rorry Studley, (360) 454-8445, or email Rorrystudley@gmail.com

THANK YOU FOR YOUR BUSINESS!



City of Stanwood - 297 Zone Knittle Reservoir II

Date: 3/2/2020
COP #: 634-04

ADDITIONAL WORK TO THE CONTRACT: 61'Dia x 47'Tail (1.0 MG) Knittle Reservoir Interior Recoating Only.

ITEM	DESCRIPTION	QTY	UNITS	LABOR	MAT / INV SERVICES	SUBCONTRACT	EQUIPMENT	TOTAL
1	Interior Recoat - Coating Applicators	1	LS			226,244.57		\$ 226,244.57
2	Doorsheet - T BAILEY, INC.							
	2.1 - Removal							
	Labor	20	HR	\$ 1,600.00	\$ 140.00			\$ 1,740.00
	Consumables, Tools, Gear	20	HR		\$ 500.00			\$ 500.00
	Equipment Truck	10	HR				500.00	\$ 500.00
	Reachfork	1	DAY				513.00	\$ 513.00
	2.2 - Installation							
	Labor	80	HR	\$ 6,400.00	\$ 560.00			\$ 6,960.00
	Consumables, Tools, Gear	80	HR		\$ 2,000.00			\$ 2,000.00
	Equipment Truck	40	HR				2,000.00	\$ 2,000.00
	Reachfork	1	DAY				513.00	\$ 513.00
	3rd Party Radiography Testing	1	LS		\$ 1,500.00			\$ 1,500.00
Mark-Up Rates (WSDOT 1-09.6)		SUBTOTAL, Direct additional costs		8,000.00	4,700.00	226,244.57	3,526.00	\$ 242,470.57
Labor	29%	MARKUP		2,320.00	987.00	27,149.35	740.46	\$ 31,196.81
Material	21%	SUBTOTAL, Direct additional costs plus markup		10,320.00	5,687.00	253,393.92	4,266.46	\$ 273,667.38
Equipment	21%							
Subcontractor	12%							
CONTRACT TIME EXTENSION:		75	Calendar Days	Liability Insurance		1%		\$ 2,424.71
				B&O Tax		0.52%		\$ 1,273.46
				Bond		1%		\$ 2,461.69
				SUBTOTAL =				\$ 279,827.23
COMMENTS:				Sales Tax		9.2%		\$ 25,744.10
Work Includes Full Field Blast of the Interior and Recoating. See Submittal #27.0 for Surface Preparation and Coatings System.				TOTAL =				\$ 305,571.33



DATE March 2, 2020

277 East Mountain view rd
Camano Island Wa 98282
Phone: 360 454-8445

Bid To: T Bailey, INC.

Project bid Name: Existing tank Stanwood , WA

Prepared by: Rorry studley

comments or special instructions: Coating Applicators will require Tbailey to provide a door sheet to fit a manlift for interior blasting and painting. T bailey will provide the removal of spent abrrasive. CA will disinfect after the tank has reached proper cure time specified by Tnemec. Coating Applicators will have a heater onsite to use if needed also a dust collection system for dust control. A representative of Coating Applicators will be onsite for a 1 year inspection if necessary.

Description	AMOUNT
Interior blast and paint	\$ 219,744.57
Heater	\$ 5,000.00
Disinfection of tank	\$ 1,500.00
TOTAL	\$ 226,244.57

If you have any questions concerning this bid, Contact Rorry Studley, (360) 454-8445, or email Rorrystudley@gmail.com

THANK YOU FOR YOUR BUSINESS!



City of Stanwood - 297 Zone Knittle Reservoir II

Date: 3/2/2020
COP #: 634-05

ADDITIONAL WORK TO THE CONTRACT: 61"Dia x 47" Tall (1.0 MG) Knittle Reservoir Interior Recoating, Exterior Overcoat, Roof Seal Welding Included.

ITEM	DESCRIPTION	QTY	UNITS	LABOR	MAT / INV SERVICES	SUBCONTRACT	EQUIPMENT	TOTAL
1	Seal Weld Int. Roof Structure, Supply New Roof Vent and Doorsheet	600	HR	\$ 48,080.00				\$ 48,080.00
	Labor	1				\$ 33,836.46		\$ 33,836.46
	Consumables, Tools, Gear	1					16,073.83	\$ 16,073.83
	Equipment & Fuel	1			\$ 1,500.00			\$ 1,500.00
	Doorsheet Radiography	1						
2	Interior Recoat - Coating Applicators	1	LS			282,448.57		\$ 282,448.57
3	Exterior Pressure Wash and Overcoat	1	LS			44,538.77		\$ 44,538.77
	Includes Additional Labor to Prep & Paint Roof Exterior Due to Interior Seal Welding.							
Mark-Up Rates (WSDOT 1-09.6)		SUBTOTAL, Direct additional costs		48,080.00	1,500.00	360,823.80	16,073.83	\$ 426,477.63
Labor	29%	MARKUP		13,943.20	315.00	43,298.86	3,375.51	\$ 60,932.56
Material	21%	SUBTOTAL, Direct additional costs plus markup		62,023.20	1,815.00	404,122.65	19,449.34	\$ 487,410.19
Equipment	21%							
Subcontractor	12%							
CONTRACT TIME EXTENSION:		125	Calendar Days			Liability Insurance	1%	\$ 4,264.78
						B&O Tax	0.52%	\$ 2,239.86
						Bond	1%	\$ 4,329.82
						Sales Tax		\$ 498,244.65
							SUBTOTAL =	\$ 498,244.65
							9.2%	\$ 45,838.51
COMMENTS:		TOTAL = \$ 544,083.16						

COMMENTS:

Work Includes Interior Full Field Blast and Recoating. See Submittal #27.0 for Surface Preparation and Coatings System. Includes Seal Welding of Complete Interior Roof Structure and Installation of New Aluminum Roof Vent (Old Roof Vent Base May Become Distorted due to Seal Welding). Includes Exterior Pressure Wash and Overcoat. Doorsheet will be provided to allow for manlifts to be used welding, blasting, painting and inspection.



277 East Mountain view rd
 Camano Island Wa 98282
 Phone: 360 454-8445

DATE March 2, 2020

Bid To: T Bailey, INC.

Project bid Name: Existing tank Stanwood , WA

Prepared by: Rorry studley

comments or special instructions: Coating Applicators will require Tbailey to provide a door sheet for manlift access. Manlift to be used to blasting, painting and ease of inspection. T bailey will provide the removal of spent abressive. CA will disinfect after the tank has reached proper cure time specified by Tnemec. Coating Applicators will have a heater onsite to use if needed also a dust collection system for dust control. A representative of Coating Applicators will be onsite for a 1 year inspection if necessary. CA will blast i beams and plate seams for tbailey to weld

Description	AMOUNT
Interior blast and paint	\$ 219,744.57
Heater	\$ 5,000.00
Disinfection of tank	\$ 1,500.00
blasting of i beams and plate seams (preparation prior to welding & sweep blast after welding)	\$ 56,204.00
TOTAL	\$ 282,448.57

If you have any questions concerning this bid, Contact Rorry Studley, (360) 454-8445, or email Rorrystudley@gmail.com

THANK YOU FOR YOUR BUSINESS!



DATE March 2, 2020

277 East Mountain view rd
Camano Island Wa 98282
Phone: 360 454-8445

Bid To: T Bailey, INC.

Project bid Name: Existing tank Stanwood , WA

Prepared by: Rorry studley

comments or special instructions: Coating Applicators powerwash and overcoat specified Tnemec coating system.
Exterior roof will required additional surface prepatation due to burn marks on roof due to interior seal welding.

Description	AMOUNT
Exterior pressure wash and overcoat (includes additional surface preparation and coatings to roof due to interior seal welding)	\$ 44,538.77
TOTAL	\$ 44,538.77

If you have any questions concerning this bid, Contact Rorry Studley, (360) 454-8445, or email Rorrystudley@gmail.com

THANK YOU FOR YOUR BUSINESS!



Submittal #27.0

Project: 297 Zone Knittle Reservoir
Owner: City of Stanwood, WA.

Existing Tank Proposed Coatings System

T BAILEY, INC.

9628 South Marchs Point Road
Anacortes, WA. 98221
Voice (360) 293-0682
Fax (360) 293-3893

It is hereby certified that this equipment/material is in compliance with the contract drawings and specifications, coordination with other work on the job, and dimensional suitability.

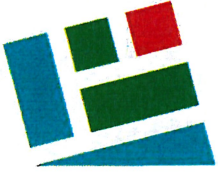
T BAILEY, INC. By: Ryan Broussard

Date: 2-03-20

TNW, INC.

INDEPENDENT REPRESENTATIVE OF TNEMEC COMPANY INCORPORATED

7929 2ND AVENUE SOUTH SEATTLE, WA 98108 TEL: 206-762-5755 FAX: 206-767-7588 WWW.TNEMEC.COM



February 3, 2020

T BAILEY, INC.
Michael A. Jackson
9628 S. March's Point Rd.
Anacortes, WA 98221

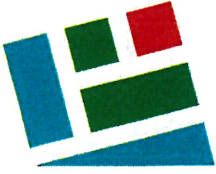
Project: 297 Zone Knittle Existing Reservoir Repaint
Subject: Tnemec Material Submittal

Scott McConnell
Tnemec Regional Representative

TNW, INC.

INDEPENDENT REPRESENTATIVE OF TNEMEC COMPANY INCORPORATED

7929 2ND AVENUE SOUTH SEATTLE, WA 98108 TEL: 206-762-5755 FAX: 206-767-7588 WWW.TNEMEC.COM



February 3, 2020

T BAILEY, INC.
Michael A. Jackson
9628 S. March's Point Rd.
Anacortes, WA 98221

Project: 297 Zone Knittle Existing Reservoir Repaint
Subject: TNEMEC Material Submittal

Mr. Jackson,
Thank you for choosing TNEMEC Protective Coatings. Please review the following submittal information in regards to the above mentioned project.

**Existing Welded Steel Reservoir
Coating System for Interior Steel:**

Surface Preparation: SP10 Near White Blast Cleaning
Primer: All prepared areas shall receive one coat TNEMEC Series 94H20
Hydro-Zinc at 2.5 to 3.5 mils DFT
Finish: Coated Surfaces receive one coat of TNEMEC Series 141 Epoxoline at
10.0 to 12.0 mils DFT.
NOTE: Minimum DFT shall be 12.5 mils

Coating System for Exterior Steel

Surface Preparation: All exterior existing coated surfaces shall receive a high-pressure wash
-- 3,000 PSI at 3.5 gallons per minute minimum. Surface is to be clean, dry and free of
contaminants. The Contractor shall take precautions not to damage or remove tightly
adherent paint or primer in preparing the exterior surface of the reservoir for painting. . All
pitted and rusted areas shall receive a Power Tool Cleaning in accordance with SSPC SP-
11. All "popped" or loose paint and rusted areas shall be sanded to remove all loose or flaking
paint.

Spot Prime: All prepared bare steel surfaces with one coat of TNEMEC Series 27
Typoxy at 3.0 to 5.0 mils dry film thickness.

Finish: All primed and prepared surfaces with one coat of TNEMEC Series 73
EnduraShield at 3.0 to 5.0 mils dry thickness.

NOTE: Minimum dry film thickness shall be 3.0 mils over coated surfaces, spot prime is 6.0
mils DFT.

Reference the TNEMEC Series 73 EnduraShield data sheet to note over coating existing Series 73
EnduraShield with itself requires clean and dry. TNEMEC Series 73 EnduraShield has an open recoat
window with itself. All the chalking, organics and surface contaminants are to be removed during the
power washing process.

If you have any questions, or require additional information, please feel free to give me a call.

Cordially,

Scott McConnell
Tnemec Regional Representative



PRODUCT PROFILE

GENERIC DESCRIPTION Aromatic Urethane, Zinc-Rich

COMMON USAGE

A single-component, moisture-cured, zinc-rich primer for steel structures, including the interior and exterior of steel potable water tanks. Provides outstanding long-term corrosion resistance when used as a primer in conjunction with other Tnemec coatings. It cures quickly and offers rapid recoat at surface temperatures down to 35°F. **Note:** When used in conjunction with cathodic protection, anodes or impressed current systems should not provide current demand more negative than -1.05 volts relative to a copper-copper sulfate reference electrode half-cell.

COLORS

Greenish-gray

ZINC PIGMENT

83% by weight in dried film

SPECIAL QUALIFICATIONS

Certified (with or without 44-710 Urethane Accelerator) in accordance with **ANSI/NSF Std. 61** for use on interior potable water tanks of 500 gallons or greater. Topcoating with Std. 61 certified Tnemec coatings is required. Contact your Tnemec representative for specific recommendations. Reference "Search Listings" section of the NSF website at www.nsf.org for details on the maximum allowable DFT. Meets zinc-rich primer requirements of **AWWA D102-17** Standard for **Inside System No. 3 & 5** and **Outside System No. 3, 4 & 6**. Series 94-H₂O uses a zinc pigment which meets the requirements of **ASTM D 520 Type III** and contains less than .002% lead.

Series 94-H₂O was tested in accordance with, and passed, the California Department of Public Health CDPH/EHLB/Standard Method Version 1.1, 2010 emissions testing and meets qualifications of LEED v4, Collaborative for High Performance Schools, and Living Building Challenge.

PERFORMANCE CRITERIA

Extensive test data available. Contact your Tnemec representative for specific test results.

COATING SYSTEM

TOPCOATS

Interior: Series 20, 20HS, FC20, FC20HS, 22, FC22, L140, L140F, N140, N140F, V140, V140F, 141, 215, 406
Exterior: Series 27WB, 66, 66HS, L69, L69F, N69, N69F, 73, 115, 156, 161, 161HS, 215, 1026, 1028, 1029, 1074, 1074U, 1075, 1075U, 1080, 1081. **Note:** Certain topcoat colors may not provide one-coat hiding depending on method of application. Contact your Tnemec representative. **Note:** Series 94-H₂O must be exterior exposed for three days prior to topcoating with Series 1028 or 1029. **Note:** Series 94-H₂O must be exterior exposed for one day prior to topcoating with Series 27WB.

SURFACE PREPARATION

Wet Interior: SSPC-SP10/NACE 2 Near-White Blast Cleaning with a minimum angular anchor profile of 1.5 mils.

Exterior or Dry Interior: SSPC-SP6/NACE 3 Commercial Blast Cleaning with a minimum angular anchor profile of 1.5 mils.

TECHNICAL DATA

VOLUME SOLIDS

62.0 ± 2.0% (mixed)

RECOMMENDED DFT

2.5 to 3.5 mils (65 to 90 microns) per coat.

CURING TIME

Without 44-710

Temperature †	To Handle	To Recoat
75°F (24°C)	2 hours	8 hours
55°F (11°C)	4 hours	12 hours
35°F (2°C)	6 hours	16 hours

† 50% relative humidity. **Note:** Refer to product listings on www.nsf.org for specific potable water return to service information. Curing time will vary with surface temperature, humidity and film thickness. **Ventilation:** When used in enclosed areas, provide adequate ventilation during application and cure.

Note: For faster curing, low humidity and low-temperature applications, add No. 44-710 Urethane Accelerator (see separate product data sheet). **Note:** For cure times to immersion service, reference the specified Tnemec interior topcoat product data sheet.

VOLATILE ORGANIC COMPOUNDS

Unthinned: 0.74 lbs/gallon (89 grams/litre)

Thinned 15% (No. 49 Thinner): 0.74 lbs/gallon (89 grams/litre)

Thinned 10% (No. 3 Thinner): 1.57 lbs/gallon (188 grams/litre)

Thinned 10% (No. 2 Thinner): 1.56 lbs/gallon (187 grams/litre)

HAPS

Unthinned: 1.68 lbs/gal solids

Thinned 15% (No. 49 Thinner): 1.68 lbs/gal solids

Thinned 10% (No. 3 Thinner): 1.72 lbs/gal solids

Thinned 10% (No. 2 Thinner): 2.84 lbs/gal solids

THEORETICAL COVERAGE

996 mil sq ft/gal (24.4 m²/L at 25 microns). See APPLICATION for coverage rates.

NUMBER OF COMPONENTS

One

PACKAGING

5 gallon (18.9L) pails (yielding 3 gallons) and 1 gallon (3.79L) cans.

NET WEIGHT PER GALLON

24.92 ± 0.60 lbs (11.30 ± .27 kg)

STORAGE TEMPERATURE

Minimum 20°F (-7°C) Maximum 110°F (43°C)

TEMPERATURE RESISTANCE

Dry (Continuous) 250°F (121°C) Intermittent 300°F (149°C)

SHELF LIFE

9 months at recommended storage temperature.

FLASH POINT - SETA

82°F (28°C)

HYDRO-ZINC® | SERIES 94-H₂O

HEALTH & SAFETY

Paint products contain chemical ingredients which are considered hazardous. Read container label warning and Safety Data Sheet for important health and safety information prior to the use of this product.
Keep out of the reach of children.

APPLICATION

COVERAGE RATES

	Dry Mils (Microns)	Wet Mils (Microns)	Sq Ft/Gal (m ² /Gal)
Suggested	3.0 (75)	5.0 (125)	331 (30.8)
Minimum	2.5 (65)	4.0 (100)	398 (37.0)
Maximum	3.5 (90)	5.5 (140)	284 (26.4)

Allow for overspray and surface irregularities. Wet film thickness is rounded to the nearest 0.5 mil or 5 microns. Application of coating below minimum or above maximum recommended dry film thicknesses may adversely affect coating performance. Reference the "Search Listings" section of the NSF website at www.nsf.org for details on the maximum allowable DFT.

MIXING

Stir thoroughly making sure no pigment remains on the bottom of the can. Use an air-driven power mixer and keep material under constant agitation while mixing. Do not use material beyond pot life limits.

THINNING

For air spray, thin up to 15% or 1 1/4 pints (570 mL) per gallon with No. 49 Thinner or thin up to 10% or 3/4 pint (380 mL) per gallon with No. 2 or No. 3 Thinner. (Use No. 2 if ambient temperatures are below 80°F (27°C) and No. 3 if above 80°F (27°C).) For brush or roller, thin up to 5% or 1/4 pint (190 mL) per gallon with No. 49 Thinner or thin up to 10% or 3/4 pint (380 mL) per gallon with No. 2 or No. 3 Thinner. Thinning is normally not required for airless spray. **Note:** No. 49 Thinner may be used where VOC restrictions apply. **Caution: Series 94-H₂O certification is based on thinning with No. 49, No. 2 or No. 3 Thinner. Use of any other thinner voids NSF/ANSI Std. 61 certification.**

POT LIFE

8 hours at 77°F (25°C) and 50% R.H.

Caution: This product cures with moisture acting as a catalyst. Incorporation of moisture or moisture laden air (humidity) during use will shorten pot life. Avoid continual agitation at high RPM. When feasible keep containers of mixed material covered during use.

APPLICATION EQUIPMENT

Note: When intermediate and finish coats are white or light colors, best hiding of this dark color primer can be achieved by spray application; or when roller applied, by using 1/4" nap covers.

Air Spray

Gun	Fluid Tip	Air Cap	Air Hose ID	Mat'l Hose ID	Atomizing Pressure	Pot Pressure
DeVilbiss JGA †	E	704 or 765	5/16" or 3/8" (7.9 or 9.5 mm)	3/8" or 1/2" (9.5 or 12.7 mm)	40-50 psi (2.8-3.4 bar)	10-20 psi (0.7-1.4 bar)

† (with heavy mastic spring) Low temperatures or longer hoses will require additional pressure. Use pressure pot equipped with an agitator and keep pressure pot at same level or higher than the spray gun. Compressed air must be dry.

Airless Spray

Tip Orifice	Atomizing Pressure	Mat'l Hose ID	Manifold Filter
0.015"-0.019" (380-481 microns) Reversible Tip	3000-4000 psi (207-276 bar)	1/4" or 3/8" (6.4 or 9.5 mm)	60 mesh (250 microns)

Use appropriate tip/atomizing pressure for equipment, applicator technique and weather conditions.

Roller: Use a 1/4" or 3/8" (6.4 mm or 9.5 mm) synthetic woven nap roller cover. Stir material frequently or keep under agitation to prevent settling.

Brush: Use high quality natural or synthetic bristle brushes.

SURFACE TEMPERATURE

Minimum 35°F (2°C) Maximum 140°F (60°C) Maximum for Brush & Roller 120°F (49°C)

The surface should be dry and at least 5°F (3°C) above the dew point. **Note:** Series 44-710 Accelerator must be used if the surface temperature is 35°F to 60°F (2°C to 16°C) and 20% to 40% relative humidity. Please reference Technical Bulletin 98-14 for more information.

AMBIENT HUMIDITY

Minimum 20% Maximum 90%

CLEANUP

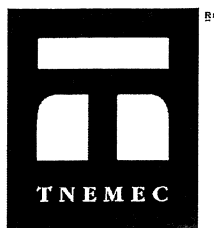
Flush and clean all equipment immediately after use with the recommended thinner or xylene or, when required by SCAQMD regulations, No. 49 Thinner.

CAUTION

Series 94-H₂O, with one-component configuration, prevents the product's ability to offer "dry-fall" characteristics.

WARRANTY & LIMITATION OF SELLER'S LIABILITY: Tnemec Company, Inc. warrants only that its coatings represented herein meet the formulation standards of Tnemec Company, Inc. THE WARRANTY DESCRIBED IN THE ABOVE PARAGRAPH SHALL BE IN LIEU OF ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. The buyer's sole and exclusive remedy against Tnemec Company, Inc. shall be for replacement of the product in the event a defective condition of the product should be found to exist and the exclusive remedy shall not have failed its essential purpose as long as Tnemec is willing to provide comparable replacement product to the buyer. NO OTHER REMEDY (INCLUDING, BUT NOT LIMITED TO, INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR LOST PROFITS, LOST SALES, INJURY TO PERSON OR PROPERTY, ENVIRONMENTAL INJURIES OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL LOSS) SHALL BE AVAILABLE TO THE BUYER. Technical and application information herein is provided for the purpose of establishing a general profile of the coating and proper coating application procedures. Test performance results were obtained in a controlled environment and Tnemec Company makes no claim that these tests or any other tests, accurately represent all environments. As application, environmental and design factors can vary significantly, due care should be exercised in the selection and use of the coating.

Tnemec Company Inc. 6800 Corporate Drive Kansas City, Missouri 64120-1372 +1 816-483-3400 Fax: 1-816-483-3969 www.tnemec.com



Safety Data Sheet

Issue Date 26-Jun-2015

Revision Date 26-Jun-2015

Revision Number 7

1. IDENTIFICATION

Product identifier

Product Code F094-0H20
Product Name HYDRO-ZINC GREENISH GRAY

Other means of identification

Common Name SERIES 94-H20
UN/ID no. 1263

Recommended use of the chemical and restrictions on use

Recommended Use industrial paint.
Uses advised against Consumer use, For professional use only. Not for residential use.

Details of the supplier of the safety data sheet

Manufacturer Address

Tnemec Company, Inc. 6800 Corporate Drive, Kansas City, MO 64120-1372

Emergency telephone number

Company Phone Number Tnemec Regulatory Dept: 816-474-3400
24 Hour Emergency Phone Number 800-535-5053 (Infotrac)

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Respiratory sensitization	Category 1
Skin sensitization	Category 1
Carcinogenicity	Category 1A
Specific target organ toxicity (repeated exposure)	Category 2
Flammable Liquids	Category 3

Label elements

EMERGENCY OVERVIEW

Danger

Hazard statements

Causes skin irritation
Causes serious eye irritation
May cause allergy or asthma symptoms or breathing difficulties if inhaled
May cause an allergic skin reaction
May cause cancer
May cause damage to organs through prolonged or repeated exposure
Flammable liquid and vapor

**Appearance** opaque**Physical state** liquid**Odor** Slight**Precautionary Statements****Prevention**

Obtain special instructions before use
 Do not handle until all safety precautions have been read and understood
 Use personal protective equipment as required
 Wash face, hands and any exposed skin thoroughly after handling
 In case of inadequate ventilation wear respiratory protection
 Contaminated work clothing should not be allowed out of the workplace
 Wear protective gloves
 Do not breathe dust/fume/gas/mist/vapors/spray
 Keep away from heat/sparks/open flames/hot surfaces. – No smoking
 Keep container tightly closed
 Ground/bond container and receiving equipment
 Use explosion-proof electrical/ventilating/lighting/mixing/equipment
 Use only non-sparking tools
 Take precautionary measures against static discharge

Response

IF exposed or concerned: Get medical advice/attention
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 If eye irritation persists: Get medical advice/attention
 If skin irritation or rash occurs: Get medical advice/attention
 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
 Wash contaminated clothing before reuse
 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
 In case of fire: Use CO₂, dry chemical, or foam for extinction

Storage

Store locked up
 Store in a well-ventilated place. Keep cool
 Keep away from children

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)**Other information**

Cancer hazard. Contains crystalline silica which can cause cancer. (Risk of cancer depends on duration and level of exposure).
 Respirable crystalline silica (quartz) can cause silicosis, a fibrosis (scarring) of the lungs
 Inhalation of metallic zinc dust may result in symptoms known as metal fume fever. Symptoms include chills, fever, muscular pain, nausea and vomiting
 SEE SAFETY DATA SHEET
 Acute Toxicity 15.94173 % of the mixture consists of ingredient(s) of unknown toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No	Weight-%
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ZINC (TOTAL DUST)	7440-66-6	60 - 100%
P-CHLOROBENZOTRIFLUORIDE	98-56-6	10 - 30%
DIPHENYLMETHANE DIISOCYANATE (MDI) POLYMER	-	1 - 10%
DIPHENYLMETHANE DIISOCYANATE (MDI) REACTIVE MONOMER	101-68-8	1 - 10%
ZINC OXIDE (TOTAL DUST)	1314-13-2	1 - 10%
XYLENE	1330-20-7	1 - 10%
YELLOW IRON OXIDE	51274-00-1	1 - 10%
POLYMERIC MDI	9016-87-9	1 - 10%
CRYSTALLINE SILICA (QUARTZ)	14808-60-7	0.1 - 1%
ETHYL BENZENE	100-41-4	0.1 - 1%
P-TOLUENESULFONYL ISOCYANATE	4083-64-1	0.1 - 1%

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures

General advice	If symptoms persist, call a physician.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If symptoms persist, call a physician.
Inhalation	Remove to fresh air. Oxygen or artificial respiration if needed. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion	If swallowed, do not induce vomiting. Get medical attention immediately.
Self-protection of the first aider	Use personal protective equipment. Avoid contact with eyes, skin and clothing.

Most important symptoms and effects, both acute and delayed

Notes to physician	Treat symptomatically.
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5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Carbon dioxide. Foam. Dry chemical.

Unsuitable extinguishing media Do not use a solid water stream as it may scatter and spread fire.

Specific hazards arising from the chemical

Thermal decomposition can lead to release of irritating gases and vapours. In the event of fire and/or explosion do not breathe fumes.

Hazardous combustion products Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. Carbon oxides. Hydrocarbons. Oxides of nitrogen. Chlorine. Fluorine. Hydrogen cyanide. Sulfur oxides. Zinc oxide fume.

Protective equipment and precautions for firefighters

Use water spray to cool unopened containers. In the event of fire, wear self-contained breathing apparatus. Keep away from heat/sparks/open flames/hot surfaces. MAY CAUSE HEAT AND PRESSURE BUILD-UP IN CLOSED CONTAINERS. Solvent vapors are heavier than air and may spread along floors. Flash back possible over considerable distance.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with eyes, skin and clothing. Use personal protective equipment. Remove all sources of ignition.

Environmental Precautions

Environmental precautions Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system.

Methods and material for containment and cleaning up

Methods for containment Remove all sources of ignition. Spills may be collected with inert, absorbent material for proper disposal. Use non-sparking tools, protective gloves, goggles and clothing, adequate ventilation, avoid the breathing of vapors and use respiratory protective devices. Transfer absorbent material to suitable containers for proper disposal.

Methods for cleaning up If spilled, contain spilled material and remove with inert absorbent. Dispose of contaminated absorbent, container and unused contents in accordance with local, state and federal regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling **Use only with adequate ventilation.** Avoid contact with eyes, skin and clothing. Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Do not eat, drink or smoke when using this product. When used in a mixture, read the labels and safety data sheets of all components. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Storage Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children.

Incompatible products Strong oxidizing agents. Water, alcohols, amines, strong bases, metal components, surface active materials. Acids. Product may release hydrogen.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
P-CHLOROBENZOTRIFLUORIDE 98-56-6	TWA: 2.5 mg/m ³	-	
DIPHENYLMETHANE DIISOCYANATE (MDI) REACTIVE MONOMER 101-68-8	TWA: 0.005 ppm	Ceiling: 0.02 ppm Ceiling: 0.2 mg/m ³	75 mg/m ³
ZINC OXIDE (TOTAL DUST) 1314-13-2	TWA: 2 mg/m ³ STEL: 10 mg/m ³	TWA: 5 mg/m ³ TWA: 10 mg/m ³ STEL: 10 mg/m ³	500 mg/m ³
XYLENE 1330-20-7	TWA: 100 ppm STEL: 150 ppm	TWA: 15 mg/m ³ TWA: 100 ppm TWA: 435 mg/m ³ STEL: 150 ppm STEL: 655 mg/m ³	

CRYSTALLINE SILICA (QUARTZ) 14808-60-7	TWA: 0.025 mg/m ³	TWA: 0.1 mg/m ³	50 mg/m ³
ETHYL BENZENE 100-41-4	TWA: 20 ppm	TWA: 100 ppm TWA: 435 mg/m ³ STEL: 125 ppm STEL: 545 mg/m ³	800 ppm

Appropriate engineering controls**Engineering measures**

Sufficient ventilation, in volume and pattern, should be provided through both local and general exhaust to keep the air contaminant concentration below current applicable OSHA Permissible Exposure Limits (PEL) and ACGIH's Threshold Limit Values (TLV). Appropriate ventilation should be employed to remove hazardous decomposition products formed during welding or flame cutting operations of surfaces coated with this product.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Use chemical resistant splash type goggles. If splashes are likely to occur, wear face-shield.

Skin and body protection

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection

Use only with adequate ventilation. Do not breathe vapors, spray mist, or dust. Ensure fresh air entry during application and drying. If you experience eye watering, headache or dizziness or if air monitoring demonstrates vapor/mist or dust levels are above applicable limits, wear an appropriate, properly fitted respirator (NIOSH/MSHA approved) during and after application. Follow respirator manufacturer's directions for respirator use. Respirable crystalline silica (quartz) can cause silicosis, a fibrosis (scarring) of the lungs. INDIVIDUALS WITH LUNG OR BREATHING PROBLEMS OR PRIOR REACTION TO ISOCYANATES MUST NOT BE EXPOSED TO VAPOR OR SPRAY MIST. Do not breathe vapor or spray mist. Wear an appropriate, properly fitted respirator (NIOSH/MSHA approved) during and after application unless air monitoring demonstrates vapor/mist levels are below applicable limits. An airline respirator (TC 19C NIOSH/MSHA) is recommended. A vapor-particulate respirator (TC 23C NIOSH/MSHA) may be appropriate where air monitoring demonstrates vapors are less than ten times the applicable exposure limits and the isocyanate concentration is less than its applicable exposure limit. The use of an air-supplied respirator is mandatory whenever the airborne concentration of isocyanate monomer is unknown.

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice. Avoid breathing dust created by cutting, sanding, or grinding.

9. PHYSICAL AND CHEMICAL PROPERTIES
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Information on basic physical and chemical properties

Physical state	liquid	Odor	Slight
Appearance	opaque	Odor threshold	No information available
Color	No information available		
Property	Values	Remarks	
pH		No data available	
Melting point / freezing point		No data available	
Boiling point / boiling range	138 °C / 280.0 °F		
Flash point	28 °C / 82.0 °F	Pensky Martens - Closed Cup	
Evaporation rate		No data available	
Flammability (solid, gas)		No information available	
Flammability Limit in Air		No data available	
Upper flammability limit	N/A		
Lower flammability limit	1.0		
Vapor pressure		No data available	

Vapor density		No data available
Specific gravity	2.98751	g/cm3
Water solubility	Insoluble in cold water	
Solubility in other solvents		No data available
Partition coefficient: n-octanol/water		No data available
Autoignition temperature		No data available
Decomposition temperature		No data available
Kinematic viscosity		No data available
Dynamic viscosity	550 centipoises	approx

Other Information

Density	24.9158 lbs/gal
Volatile organic compounds (VOC) content	0.74392 lbs/gal
Total volatiles weight percent	15.75 %
Total volatiles volume percent	37.76 %

10. STABILITY AND REACTIVITY**Reactivity**

No data available

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

None under normal processing.

Conditions to avoid

Heat, flames and sparks. Amines.

Incompatible materials

Strong oxidizing agents, Water, alcohols, amines, strong bases, metal components, surface active materials, Acids, Product may release hydrogen

Hazardous decomposition products

Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. Carbon oxides. Hydrocarbons. Oxides of nitrogen. Hydrogen cyanide. Sulfur oxides. Zinc oxide fume. Chlorine. Fluorine.

11. TOXICOLOGICAL INFORMATION**Information on Likely Routes of Exposure**

Inhalation	May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination. Contains isocyanate monomer. If subject to spray application, engineering and administrative controls must be instituted to maintain an exposure level below .005ppm. If these controls are not adequate, the use of an air-supplied respirator is mandatory. May cause sensitization of susceptible persons. Respirable crystalline silica (quartz) can cause silicosis, a fibrosis (scarring) of the lungs.
Eye contact	Severely irritating to eyes.
Skin contact	Irritating to skin. May cause sensitization by skin contact.
Ingestion	Harmful if swallowed.

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
P-CHLOROBENZOTRIFLUORIDE 98-56-6	= 13 g/kg (Rat)	> 2 mL/kg (Rabbit)	= 33 mg/L (Rat) 4 h

DIPHENYLMETHANE DIISOCYANATE (MDI) POLYMER			490 mg/m ³ , 4h (rat)
DIPHENYLMETHANE DIISOCYANATE (MDI) REACTIVE MONOMER 101-68-8	= 31600 mg/kg (Rat) = 9200 mg/kg (Rat)		= 369 mg/m ³ (Rat) 4 h
ZINC OXIDE (TOTAL DUST) 1314-13-2	> 5000 mg/kg (Rat)		
XYLENE 1330-20-7	= 3500 mg/kg (Rat)	> 1700 mg/kg (Rabbit) > 4350 mg/kg (Rabbit)	= 29.08 mg/L (Rat) 4 h = 5000 ppm (Rat) 4 h
POLYMERIC MDI 9016-87-9	= 49 g/kg (Rat)	> 9400 mg/kg (Rabbit)	= 490 mg/m ³ (Rat) 4 h
CRYSTALLINE SILICA (QUARTZ) 14808-60-7	= 500 mg/kg (Rat)		
ETHYL BENZENE 100-41-4	= 3500 mg/kg (Rat)	= 15400 mg/kg (Rabbit)	= 17.2 mg/L (Rat) 4 h
P-TOLUENESULFONYL ISOCYANATE 4083-64-1	= 2234 mg/kg (Rat)		> 640 ppm (Rat) 1 h

Information on toxicological effects**Symptoms**

Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
Skin disorders. Respiratory disorders. Irritating to eyes and skin.

Delayed and immediate effects as well as chronic effects from short and long-term exposure**Chronic Toxicity**

NOTICE: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal. Cancer hazard. Contains crystalline silica which can cause cancer. (Risk of cancer depends on duration and level of exposure).

Sensitization

May cause sensitization of susceptible persons.

Mutagenicity

No information available.

Carcinogenicity

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	ACGIH	IARC	NTP	OSHA
DIPHENYLMETHANE DIISOCYANATE (MDI) REACTIVE MONOMER 101-68-8		Group 3		
XYLENE 1330-20-7		Group 3		
POLYMERIC MDI 9016-87-9		Group 3		
CRYSTALLINE SILICA (QUARTZ) 14808-60-7	A2	Group 1	Known	X
ETHYL BENZENE 100-41-4	A3	Group 2B		X

Reproductive effects

No information available.

STOT - single exposure

No information available

STOT - repeated exposure

Causes damage to organs through prolonged or repeated exposure

Target organ effects

Central nervous system, Gastrointestinal tract, Eyes, liver, Lungs, respiratory system, Skin, blood, kidney.

Aspiration hazard

No information available.

Acute Toxicity

15.94173 % of the mixture consists of ingredient(s) of unknown toxicity.

12. ECOLOGICAL INFORMATION**Ecotoxicity**

27.51052912 % of the mixture consists of component(s) of unknown hazards to the aquatic environment

Component	Toxicity to algae	Toxicity to fish	Toxicity to daphnia
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ZINC (TOTAL DUST) 7440-66-6	0.11 - 0.271: 96 h Pseudokirchneriella subcapitata mg/L EC50 static 0.09 - 0.125: 72 h Pseudokirchneriella subcapitata mg/L EC50 static	30: 96 h Cyprinus carpio mg/L LC50 7.8: 96 h Cyprinus carpio mg/L LC50 static 0.24: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 0.59: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 2.66: 96 h Pimephales promelas mg/L LC50 static 3.5: 96 h Lepomis macrochirus mg/L LC50 static 0.45: 96 h Cyprinus carpio mg/L LC50 semi-static 0.41: 96 h Oncorhynchus mykiss mg/L LC50 static 2.16 - 3.05: 96 h Pimephales promelas mg/L LC50 flow-through 0.211 - 0.269: 96 h Pimephales promelas mg/L LC50 semi-static	0.139 - 0.908: 48 h Daphnia magna mg/L EC50 Static
P-CHLOROBENZOTRIFLUORIDE 98-56-6		11.5 - 15.8: 48 h Lepomis macrochirus mg/L LC50 static	3.68: 48 h Daphnia magna mg/L EC50
XYLENE 1330-20-7		LC50= 13.4 mg/L Pimephales promelas 96 h LC50 2.661 - 4.093 mg/L Oncorhynchus mykiss 96 h LC50 13.5 - 17.3 mg/L Oncorhynchus mykiss 96 h LC50 13.1 - 16.5 mg/L Lepomis macrochirus 96 h LC50= 19 mg/L Lepomis macrochirus 96 h LC50 7.711 - 9.591 mg/L Lepomis macrochirus 96 h LC50 23.53 - 29.97 mg/L Pimephales promelas 96 h LC50= 780 mg/L Cyprinus carpio 96 h LC50> 780 mg/L Cyprinus carpio 96 h LC50 30.26 - 40.75 mg/L Poecilia reticulata 96 h	EC50 = 3.82 mg/L 48 h LC50 = 0.6 mg/L 48 h
YELLOW IRON OXIDE 51274-00-1		EC50: > 1,000 mg/l (Golden orfe (Leuciscus idus), 48 h)	
ETHYL BENZENE 100-41-4	4.6: 72 h Pseudokirchneriella subcapitata mg/L EC50 438: 96 h Pseudokirchneriella subcapitata mg/L EC50 2.6 - 11.3: 72 h Pseudokirchneriella subcapitata mg/L EC50 static 1.7 - 7.6: 96 h Pseudokirchneriella subcapitata mg/L EC50 static	11.0 - 18.0: 96 h Oncorhynchus mykiss mg/L LC50 static 32: 96 h Lepomis macrochirus mg/L LC50 static 4.2: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 7.55 - 11: 96 h Pimephales promelas mg/L LC50 flow-through 9.6: 96 h Poecilia reticulata mg/L LC50 static 9.1 - 15.6: 96 h Pimephales promelas mg/L LC50 static	1.8 - 2.4: 48 h Daphnia magna mg/L EC50

Persistence and degradability

No information available.

Bioaccumulation

No information available.

Mobility in Environmental Media

Component	log Pow
P-CHLOROBENZOTRIFLUORIDE 98-56-6	3.7
XYLENE 1330-20-7	2.77
ETHYL BENZENE 100-41-4	3.118

Other Adverse Effects

No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods**Disposal Methods**

Keep container tightly closed. If spilled, contain spilled material and remove with inert absorbent. Dispose of contaminated absorbent, container and unused contents in accordance with local, state and federal regulations.

Contaminated packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal.

Component	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
XYLENE 1330-20-7		Included in waste stream: F039		U239
ETHYL BENZENE 100-41-4		Included in waste stream: F039		

Component	CAWAST
ZINC (TOTAL DUST) 7440-66-6	Ignitable Toxic
ZINC OXIDE (TOTAL DUST) 1314-13-2	Toxic
XYLENE 1330-20-7	Toxic Ignitable
ETHYL BENZENE 100-41-4	Toxic Ignitable

14. TRANSPORT INFORMATION**DOT**

UN/ID no. 1263
 Proper Shipping Name paint
 Hazard Class 3
 Packing Group III
 Emergency Response Guide Number 128

IATA

UN/ID no. 1263
 Proper Shipping Name paint
 Hazard Class 3
 Packing Group III
 ERG Code 366

Additional information

Call TNEC Traffic Department - 816-474-3400 for additional information or other modes of Transportation.

15. REGULATORY INFORMATION**International Inventories**

TSCA Complies
 DSL/NDL Complies
 EINECS/ELINCS Does not comply
 ENCS Does not comply
 IECSC Complies
 KECL Complies
 PICCS Does not comply
 AICS Complies

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances
 IECSC - China Inventory of Existing Chemical Substances
 KECL - Korean Existing and Evaluated Chemical Substances
 PICCS - Philippines Inventory of Chemicals and Chemical Substances
 AICS - Australian Inventory of Chemical Substances

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

Component
 DIPHENYLMETHANE DIISOCYANATE (MDI) REACTIVE MONOMER
 XYLENE
 ETHYL BENZENE

HAPS Data

United States of America

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40n of the Code of Federal Regulations, Part 372:

Component	SARA 313 - Threshold Values
ZINC (TOTAL DUST) - 7440-66-6	1.0
DIPHENYLMETHANE DIISOCYANATE (MDI) REACTIVE MONOMER - 101-68-8	1.0
ZINC OXIDE (TOTAL DUST) - 1314-13-2	1.0
XYLENE - 1330-20-7	1.0
POLYMERIC MDI - 9016-87-9	1.0
ETHYL BENZENE - 100-41-4	0.1

SARA 311/312 Hazardous

Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Component	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
ZINC (TOTAL DUST) 7440-66-6		X	X	
ZINC OXIDE (TOTAL DUST) 1314-13-2		X		
XYLENE 1330-20-7	100 lb			X
ETHYL BENZENE 100-41-4	1000 lb	X	X	X

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs	RQ
ZINC (TOTAL DUST) 7440-66-6	1000 lb		RQ 454 kg final RQ RQ 1000 lb final RQ
DIPHENYLMETHANE DIISOCYANATE (MDI) REACTIVE MONOMER 101-68-8	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ
XYLENE 1330-20-7	100 lb		RQ 100 lb final RQ RQ 45.4 kg final RQ
ETHYL BENZENE 100-41-4	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ

United States of America

California Prop. 65

WARNING! This product contains a chemical known in the State of California to cause cancer

Component	California Prop. 65
CRYSTALLINE SILICA (QUARTZ) - 14808-60-7	Carcinogen
ETHYL BENZENE - 100-41-4	Carcinogen

California SCAQMD Rule 443

Contains Photochemically Reactive Solvent

State Right-to-Know

Component	New Jersey	Massachusetts	Pennsylvania
ZINC (TOTAL DUST) 7440-66-6	X	X	X
P-CHLOROBENZOTRIFLUORIDE 98-56-6	X		X
DIPHENYLMETHANE DIISOCYANATE (MDI) REACTIVE MONOMER 101-68-8	X	X	X
ZINC OXIDE (TOTAL DUST) 1314-13-2	X	X	X
XYLENE 1330-20-7	X	X	X
POLYMERIC MDI 9016-87-9	X		
CRYSTALLINE SILICA (QUARTZ) 14808-60-7	X	X	X
ETHYL BENZENE 100-41-4	X	X	X

16. OTHER INFORMATION**NFPA**

Health 3

Flammability 3

Instability 2

Physical hazard *

HMIS (Hazardous

Health 3*

Flammability 3

Reactivity 2

**Material Information
System)****Prepared By**

Tnemec Regulatory Dept: 816-474-3400

Revision Date

26-Jun-2015

Revision Summary

9 4 5 7 10 8 11 14

Disclaimer

For specific information regarding occupational safety and health standards, please refer to the Code of Federal Regulations, Title 29, Part 1910.

To the best of our knowledge, the information contained herein is accurate. However, neither the Tnemec Company or any of its subsidiaries assume any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist.

End of MSDS



PRODUCT PROFILE

GENERIC DESCRIPTION	Modified Polyamine Epoxy
COMMON USAGE	High solids coating offering high-build edge protection and excellent corrosion resistance. For use on the interior and exterior of steel or concrete tanks, reservoirs, pipes, valves, pumps, and equipment, as well as other steel and concrete substrates. It provides excellent resistance to abrasion and is suitable for immersion service in potable water, crude oil, and finished fuels.
COLORS	Available in the following standard industrial colors: 1211 Red, 1253 Gray, 1255 Beige, 1256 Blue and 35GR Black. Note: Epoxies chalk with extended exposure to sunlight. Lack of ventilation, incomplete mixing, miscatalyzation or the use of heaters that emit carbon dioxide and carbon monoxide during application and initial stages of curing may cause yellowing to occur. Important: Due to the product's curing agent chemistry, color variations can be pronounced. However, these changes in color are aesthetic only and will not affect performance or certifications. Contact your Tnemec representative for more information.
SPECIAL QUALIFICATIONS	Certified by NSF International in accordance with NSF/ANSI Std. 61. Seven day ambient air cured Series 141 is qualified for use on tanks and reservoirs of 500 gallons (1893 L) capacity and greater, pipes 22 inches (56 cm) in diameter and greater, fittings 1 inch (2.54 cm) in diameter and greater, valves 4 inches (10 cm) in diameter and greater, and pumps 4 inches (10 cm) in diameter and greater. When cured for 30 days at ambient air temperature, Series 141 is qualified for use on pipes 10 inches (25.4 cm) in diameter and greater, fittings 3/4 inch (1.9 cm) in diameter and greater, valves 2 1/2 inches (6.35 cm) in diameter and greater, and pumps 4 inches (10 cm) in diameter and greater. Reference the "Search Listings" section of the NSF website at www.nsf.org for details on the maximum allowable DFT, certified colors, and primer and topcoat compatibility for use in potable water. Series 141 conforms to API 652 for lining above ground storage tanks. Contact your Tnemec representative for additional information.
PERFORMANCE CRITERIA	Extensive test data available. Contact your Tnemec representative for specific test results.

COATING SYSTEM

PRIMERS	Steel: Self-priming, 1, 20, FC20, 27, 27WB, 37H, L69, L69F, N69, N69F, V69, V69F, 90E-92, 90G-1K97, 90-97, H90-97, 90G-98, 91-H ₂ O, H91-H ₂ O, 94-H ₂ O, 135, L140, L140F, N140, N140F, V140, V140F, 394, 530 Concrete: Self-priming, 20, FC20, 27, 27WB, L69, L69F, N69, N69F, V69, V69F, L140, L140F, N140, N140F, V140, V140F, 215, 217, 218 CMU: Self-priming or Series 130, 215, 218, 1254
TOPCOATS	Exterior: Series 73, 180, 1028, 1029, 1074, 1074U, 1075, 1075U. Note: The following maximum recoat time applies when using Series 73, 180, 1074, 1074U, 1075, or 1075U: fourteen (14) days. If this time limit is exceeded, Series 141 must be uniformly scarified prior to topcoating.

SURFACE PREPARATION

PRIMED STEEL	Immersion Service: Scarify the Series 20, FC20, L69, L69F, N69, N69F, V69, V69F, L140, L140F, N140, N140F, V140 or V140F prime coat surface by brush-blasting with fine abrasive before topcoating if it has been exterior exposed for 30 days or longer and 141 is the specified topcoat.
STEEL	Immersion Service: SSPC-SP10/NACE 2 Near-White Blast Cleaning with a minimum angular anchor profile of 2.0 mils Non-Immersion Service: SSPC-SP6/NACE 3 Commercial Blast Cleaning with a minimum angular anchor profile of 2.0 mils. Note: Abrasive blast cleaning generally produces the best coating performance. If conditions will not permit this, Series 141 may be applied to SSPC-SP2 or SP3 Hand or Power Tool Cleaned surfaces.
CONCRETE	Allow new cast-in-place concrete to cure a minimum of 28 days at 75°F (24°C). Verify concrete dryness in accordance with ASTM F 1869 "Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride" (moisture vapor transmission should not exceed three pounds per 1,000 square feet in a 24 hour period), F 2170 "Standard Test Method for Determining Relative Humidity in Concrete using in situ Probes" (relative humidity should not exceed 80%), or D 4263 "Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method" (no moisture present). Prepare concrete surfaces in accordance with NACE No. 6/SSPC-SP13 Joint Surface Preparation Standards and ICRI Technical Guidelines. Abrasive blast, shot-blast, water jet or mechanically abrade concrete surfaces to remove laitance, curing compounds, hardeners, sealers and other contaminants and to provide a minimum ICRI-CSP 3 surface profile. Large cracks, voids and other surface imperfections should be filled with a recommended filler or surfacer.
ALL SURFACES	Must be clean, dry and free of oil, grease, chalk and other contaminants.

TECHNICAL DATA

VOLUME SOLIDS	82% ± 2.0% (mixed) †
RECOMMENDED DFT	4.0 to 18.0 mils (100 to 455 microns) in a one coat application. Note: Thickness requirements will vary with substrate, application method and exposure. Contact your Tnemec representative. Maximum dry film thickness for NSF exposure is 18.0 mils.

EPOXOLINE® | SERIES 141

CURING TIME AT 5 MILS DFT

Potable Water Applications:

Temperature	To Handle	To Topcoat	Immersion
90°F (32°C)	3 hours	4 hours ‡	7 days
75°F (24°C)	4 hours	5 hours ‡	7 days
65°F (18°C)	7 hours	9 hours ‡	8 days
55°F (13°C)	13 hours	18 hours ‡	9 days
45°F (7°C)	20 hours	24 hours ‡	13 days
40°F (4°C)	22 hours	28 hours ‡	18 days
35°F (0°C)	64 hours	72 hours ‡	30 days

Curing time varies with surface temperature, air movement, humidity and film thickness.

‡ **Note:** Specific application requirements, including cure schedules and environmental conditions, must be followed when topcoating Series 141. Contact Tnemec Technical Service for detailed instructions. **Note:** Maximum recoat time with itself is seven days. **Note:** For one-coat pipe and valve applications, allow 30 days cure at 75°F (24°C) prior to immersion. Refer to product listing on www.NSF.org for specific potable water return to service information.

Non-Potable Water Applications:

Temperature	To Handle	To Topcoat	Immersion
75°F (24°C)	3 hours	4 hours ‡	5 days
40°F (4°C)	4 hours	5 hours ‡	14 days

Cure time varies with surface temperature, air movement, humidity and film thickness.

‡ **Note:** Specific application requirements, including cure schedules and environmental conditions, must be followed when topcoating Series 141. Contact Tnemec Technical Service for detailed instructions. **Note:** Maximum recoat time with itself is seven days.

VOLATILE ORGANIC COMPOUNDS

EPA Method 24

Unthinned: 0.90 lbs/gallon (107 grams/litre)

Thinned 5% (No. 60 Thinner): 1.21 lbs/gallon (145 grams/litre)

Thinned 10% (No. 4 Thinner): 1.45 lbs/gallon (173 grams/litre) †

HAPS

Unthinned: 1.27 lbs/gal solids Thinned 5% (No. 60): 1.28 lbs/gal solids Thinned 10% (No. 4): 1.95 lbs/gal solids

THEORETICAL COVERAGE

1,315 mil sq ft/gal (32.2 m²/L at 25 microns). See APPLICATION for coverage rates. †

NUMBER OF COMPONENTS

Two: Part A (amine) and Part B (epoxy)

MIXING RATIO

By volume: Two (Part A) to one (Part B)

PACKAGING

	PART A (Partially Filled)	PART B (Partially Filled)	When Mixed
Large Kit	1-6 gallon pail	1-3 gallon pail	5 gallons
Small Kit	1-1 gallon can	1-1 gallon can	1 gallon

NET WEIGHT PER GALLON

13.33 ± 0.25 lbs (6.05 ± .11 kg) †

STORAGE TEMPERATURE

Minimum 20°F (-7°C) Maximum 110°F (43°C)

Prior to application, the material temperature should be above 60°F (16°C). It is suggested the material be stored at this temperature at least 48 hours prior to use.

TEMPERATURE RESISTANCE

(Dry) Continuous 250°F (121°C) Intermittent 275°F (135°C)

SHELF LIFE

12 months at recommended storage temperature.

FLASH POINT - SETA

Part A: 91°F (33°C) Part B: 111°F (44°C)

HEALTH & SAFETY

This product contains chemical ingredients which are considered hazardous. Read container label warning and Material Safety Data Sheet for important health and safety information prior to the use of this product.

Keep out of the reach of children.

APPLICATION

COVERAGE RATES

	Dry MILS (Microns)	Wet MILS (Microns)	Sq Ft/Gal (m²/Gal)
Minimum	4.0 (100)	5.0 (125)	329 (30.5)
Maximum	18.0 (455)	22.0 (560)	73 (6.8)

Note: Maximum of 18.0 mils DFT in one coat. **Maximum total dry film thickness for NSF exposure is 18.0 mils.**

Allow for overspray and surface irregularities. Wet film thickness is rounded to the nearest 0.5 mil or 5 microns.

Application of coating below minimum or above maximum recommended dry film thicknesses may adversely affect coating performance. Reference the "Search Listings" section of the NSF website at www.nsf.org for details on the maximum allowable DFT. †

MIXING

Mix the entire contents of Part A and Part B separately. Scrape all of the Part B into the Part A pail by using a flexible spatula. Use a variable speed drill with a PS Jiffy blade and mix the blended components for a minimum of two minutes. Apply the mixed material within pot life limits after agitation. Both components must be above 50°F (10°C) prior to mixing. For optimum application properties, the material temperature should be above 60°F (16°C). For applications to surfaces between 35°F to 50°F (2°C to 10°C) allow mixed material to stand 30 minutes and stir before use. **Note:** A large volume of material will set up quickly if not applied or lessened in mass. **Caution: Do not reseal mixed material. An explosion hazard may be created.**

THINNING

Caution: Do not add thinner to Part A prior to mixing with Part B. For airless spray, brush or roller, thin up to 5% per gallon with No. 4 Thinner or No. 60 Thinner. For air spray, thin up to 10% per gallon with No. 4 or No. 60 Thinner.

POT LIFE

2 hours at 77°F (21°C) 1 hour at 90°F (32°C)

SPRAY LIFE

1 hour at 77°F (21°C) 30 minutes at 90°F (32°C)

EPOXOLINE® | SERIES 141

APPLICATION EQUIPMENT

Air Spray

Gun	Fluid Tip	Air Cap	Air Hose ID	Mat'l Hose ID	Atomizing Pressure	Pot Pressure
DeVilbiss JGA	E	765 or 704	5/16" or 3/8" (7.9 or 9.5 mm)	3/8" or 1/2" (9.5 or 12.7 mm)	75-100 psi (5.2-6.9 bar)	10-20 psi (0.7-1.4 bar)

Low temperatures or longer hoses require higher pot pressure.

Airless Spray

Tip Orifice	Atomizing Pressure	Mat'l Hose ID	Manifold Filter
0.017"-0.021" (430-535 microns)	3000-3800 psi (207-262 bar)	1/4" or 3/8" (6.4 or 9.5 mm)	60 mesh (250 microns)

Use appropriate tip/atomizing pressure for equipment, applicator technique and weather conditions.

Roller: Roller application optional when environmental restrictions do not allow spraying. Use 3/8" or 1/2" (9.5 mm to 12.7 mm) synthetic woven nap covers.

Brush: Recommended for small areas only. Use high quality natural or synthetic bristle brushes.

SURFACE TEMPERATURE

Minimum 35°F (2°C) Maximum 135°F (57°C).

The surface should be dry and at least 5°F (3°C) above the dew point. Coating will not cure below minimum surface temperature.

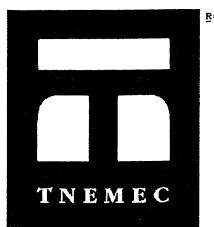
CLEANUP

Flush and clean all equipment immediately after use with the recommended thinner or MEK.

† Values may vary with color.

WARRANTY & LIMITATION OF SELLER'S LIABILITY: Tnemec Company, Inc. warrants only that its coatings represented herein meet the formulation standards of Tnemec Company, Inc. THE WARRANTY DESCRIBED IN THE ABOVE PARAGRAPH SHALL BE IN LIEU OF ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. The buyer's sole and exclusive remedy against Tnemec Company, Inc. shall be for replacement of the product in the event a defective condition of the product should be found to exist and the exclusive remedy shall not have failed its essential purpose as long as Tnemec is willing to provide comparable replacement product to the buyer. NO OTHER REMEDY (INCLUDING, BUT NOT LIMITED TO, INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR LOST PROFITS, LOST SALES, INJURY TO PERSON OR PROPERTY, ENVIRONMENTAL INJURIES OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL LOSS) SHALL BE AVAILABLE TO THE BUYER. Technical and application information herein is provided for the purpose of establishing a general profile of the coating and proper coating application procedures. Test performance results were obtained in a controlled environment and Tnemec Company makes no claim that these tests or any other tests, accurately represent all environments. As application, environmental and design factors can vary significantly, due care should be exercised in the selection and use of the coating.

Tnemec Company Inc. 6800 Corporate Drive Kansas City, Missouri 64120-1372 1-800-TNEMEC1 Fax: 1-816-483-3969 www.tnemec.com



Safety Data Sheet

Issue Date 02-Sep-2015

Revision Date 02-Sep-2015

Revision Number 6

1. IDENTIFICATION

Product identifier

Product Code F141-WH03A
Product Name EPOXOLINE OFF WHITE

Other means of identification

Common Name SERIES 141 PART A
UN/ID no. 1263

Recommended use of the chemical and restrictions on use

Recommended Use industrial paint.
Uses advised against Consumer use, For professional use only. Not for residential use.

Details of the supplier of the safety data sheet

Manufacturer Address

Tnemec Company, Inc. 6800 Corporate Drive, Kansas City, MO 64120-1372

Distributor

Tnemec Company, Inc. 86 Boul, des Entreprises, Ste. 203
Boisbriand, Quebec Canada J7G 2T3

Emergency telephone number

Company Phone Number Tnemec Regulatory Dept: 816-474-3400
24 Hour Emergency Phone Number 800-535-5053 (Infotrac)

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Category 4
Acute toxicity - Inhalation (Vapors)	Category 4
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Respiratory sensitization	Category 1A
Skin sensitization	Category 1B
Germ cell mutagenicity	Category 1B
Carcinogenicity	Category 1A
Specific target organ toxicity (repeated exposure)	Category 1
Flammable Liquids	Category 3

Label elements

EMERGENCY OVERVIEW

Danger

Hazard statements

Harmful if swallowed
Harmful if inhaled
Causes skin irritation
Causes serious eye damage
May cause allergy or asthma symptoms or breathing difficulties if inhaled
May cause an allergic skin reaction
May cause genetic defects
May cause cancer
Causes damage to organs through prolonged or repeated exposure
Flammable liquid and vapor

**Appearance** opaque**Physical state** liquid**Odor** Slight**Precautionary Statements****Prevention**

Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
In case of inadequate ventilation wear respiratory protection
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Do not breathe dust/fume/gas/mist/vapors/spray
Keep away from heat/sparks/open flames/hot surfaces. — No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/mixing/equipment
Use only non-sparking tools
Take precautionary measures against static discharge

Response

IF exposed or concerned: Get medical advice/attention
Specific treatment (see .? on this label)
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician
IF ON SKIN: Wash with plenty of soap and water
Take off contaminated clothing and wash before reuse
If skin irritation or rash occurs: Get medical advice/attention
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
In case of fire: Use CO₂, dry chemical, or foam for extinction

Storage

Store locked up
Store in a well-ventilated place. Keep cool
Keep away from children

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)**Other information**

May be harmful in contact with skin

Harmful to aquatic life with long lasting effects

Harmful to aquatic life

Cancer hazard. Contains crystalline silica which can cause cancer. (Risk of cancer depends on duration and level of exposure).

SEE SAFETY DATA SHEET

Respirable crystalline silica (quartz) can cause silicosis, a fibrosis (scarring) of the lungs

Acute Toxicity 16.83658 % of the mixture consists of ingredient(s) of unknown toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS
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Component	CAS-No	Weight-%
CRYSTALLINE SILICA (QUARTZ)	14808-60-7	10 - 30%
TALC (RESPIRABLE DUST)	14807-96-6	10 - 30%
TITANIUM DIOXIDE (TOTAL DUST)	13463-67-7	10 - 30%
ALKYLATED PHENOLIC POLYAMINE	68413-28-5	1 - 10%
XYLENE	1330-20-7	1 - 10%
CRYSTALLINE SILICA (QUARTZ)	14808-60-7	1 - 10%
MODIFIED ALIPHATIC AMINE	-	1 - 10%
BENZYL ALCOHOL	100-51-6	1 - 10%
PROPRIETARY	-	1 - 10%
MICA (RESPIRABLE DUST)	12001-26-2	1 - 10%
ETHYL BENZENE	100-41-4	1 - 10%
N-BUTANOL (SKIN)	71-36-3	1 - 10%
MODIFIED ALIPHATIC AMINE	-	1 - 10%
AMORPHOUS SILICA	7631-86-9	0.1 - 1%
MODIFIED ALIPHATIC AMINE	1477-55-0	0.1 - 1%
M-XYLENEDIAMINE	1477-55-0	0.1 - 1%
ALUMINUM OXIDES	1344-28-1	0.1 - 1%
ALUMINUM HYDROXIDE	21645-51-2	0.1 - 1%
MINERAL SPIRITS (STODDARD SOLVENT)	8052-41-3	0.1 - 1%
Trade secret	-	0.1 - 1%
MAGNESITE	546-93-0	0.1 - 1%
ALUMINUM SILICATE (TOTAL DUST)	1332-58-7	0.1 - 1%
ETHYLENEDIAMINE	107-15-3	0.1 - 1%
FATTY ACIDS	147900-93-4	0.1 - 1%
ZIRCONIUM OXIDE	1314-23-4	0.1 - 1%
FATTY ACIDS	85711-55-3	0.1 - 1%
CALCIUM MAGNESIUM CARBONATE	-	0.1 - 1%
CHLORITE	1318-59-8	0.1 - 1%
ETHYLENE GLYCOL MONOBUTYL ETHER	111-76-2	0 - 0.1%
IRON OXIDE FUME	1309-37-1	0 - 0.1%
YELLOW IRON OXIDE	51274-00-1	0 - 0.1%
BARIUM SULFATE (TOTAL DUST)	7727-43-7	0 - 0.1%
COPPER COMPOUNDS	147-14-8	0 - 0.1%
COPPER COMPOUND	28654-73-1	0 - 0.1%
BARIUM SULFATE (TOTAL DUST)	7727-43-7	0 - 0.1%

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures

General advice	If symptoms persist, call a physician.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If symptoms persist, call a physician.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion	If swallowed, do not induce vomiting. Get medical attention immediately.
Self-protection of the first aider	Use personal protective equipment. Avoid contact with eyes, skin and clothing.

Most important symptoms and effects, both acute and delayed

Notes to physician	Treat symptomatically.
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5. FIRE-FIGHTING MEASURES**Suitable extinguishing media**

Carbon dioxide. Foam. Dry chemical.

Unsuitable extinguishing media Water.

Specific hazards arising from the chemical

Thermal decomposition can lead to release of irritating gases and vapours In the event of fire and/or explosion do not breathe fumes

Hazardous combustion products Carbon monoxide. Carbon dioxide. Hydrocarbons. Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. Carbon oxides. Oxides of nitrogen. Ammonia.

Sensitivity to Static Discharge yes.

Protective equipment and precautions for firefighters

Use water spray to cool unopened containers. In the event of fire, wear self-contained breathing apparatus. Keep away from heat/sparks/open flames/hot surfaces. MAY CAUSE HEAT AND PRESSURE BUILD-UP IN CLOSED CONTAINERS. Solvent vapors are heavier than air and may spread along floors. Flash back possible over considerable distance.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment and emergency procedures**

Personal precautions Ensure adequate ventilation.

Environmental Precautions**Methods and material for containment and cleaning up**

Methods for containment Remove all sources of ignition. Spills may be collected with inert, absorbent material for proper disposal. Use non-sparking tools, protective gloves, goggles and clothing, adequate ventilation, avoid the breathing of vapors and use respiratory protective devices. Transfer absorbent material to suitable containers for proper disposal.

Methods for cleaning up

If spilled, contain spilled material and remove with inert absorbent. Dispose of contaminated absorbent, container and unused contents in accordance with local, state and federal regulations.

7. HANDLING AND STORAGE

Precautions for safe handling**Handling**

Wear personal protective equipment. Avoid contact with eyes, skin and clothing. Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Do not breathe vapours or spray mist. Do not ingest. Ensure adequate ventilation. Do not eat, drink or smoke when using this product. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities**Storage**

Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children.

Incompatible products

Strong oxidizing agents. Bases. Acids.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters**Exposure guidelines**

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
CRYSTALLINE SILICA (QUARTZ) 14808-60-7	TWA: 0.025 mg/m ³	TWA: 0.1 mg/m ³	50 mg/m ³
TALC (RESPIRABLE DUST) 14807-96-6	TWA: 2 mg/m ³	TWA: 2 mg/m ³	1000 mg/m ³
TITANIUM DIOXIDE (TOTAL DUST) 13463-67-7	TWA: 10 mg/m ³	TWA: 10 mg/m ³ TWA: 15 mg/m ³	5000 mg/m ³
XYLENE 1330-20-7	TWA: 100 ppm STEL: 150 ppm	TWA: 100 ppm TWA: 435 mg/m ³ STEL: 150 ppm STEL: 655 mg/m ³	
CRYSTALLINE SILICA (QUARTZ) 14808-60-7	TWA: 0.025 mg/m ³	TWA: 0.1 mg/m ³	50 mg/m ³
MICA (RESPIRABLE DUST) 12001-26-2	TWA: 3 mg/m ³	TWA: 3 mg/m ³	1500 mg/m ³
ETHYL BENZENE 100-41-4	TWA: 20 ppm	TWA: 100 ppm TWA: 435 mg/m ³ STEL: 125 ppm STEL: 545 mg/m ³	800 ppm
N-BUTANOL (SKIN) 71-36-3	TWA: 20 ppm	Skin Ceiling: 50 ppm Ceiling: 150 mg/m ³ TWA: 100 ppm TWA: 300 mg/m ³	1400 ppm
AMORPHOUS SILICA 7631-86-9	-	TWA: 6 mg/m ³	3000 mg/m ³
MODIFIED ALIPHATIC AMINE 1477-55-0	Skin Ceiling: 0.1 mg/m ³	Skin Ceiling: 0.1 mg/m ³	
M-XYLENEDIAMINE 1477-55-0	Skin Ceiling: 0.1 mg/m ³	Skin Ceiling: 0.1 mg/m ³	

ALUMINUM OXIDES 1344-28-1	TWA: 1 mg/m ³	TWA: 10 mg/m ³ TWA: 5 mg/m ³ TWA: 15 mg/m ³	
ALUMINUM HYDROXIDE 21645-51-2	TWA: 1 mg/m ³	-	
MINERAL SPIRITS (STODDARD SOLVENT) 8052-41-3	TWA: 100 ppm	TWA: 100 ppm TWA: 525 mg/m ³ TWA: 500 ppm TWA: 2900 mg/m ³	20000 mg/m ³
ALUMINUM SILICATE (TOTAL DUST) 1332-58-7	TWA: 2 mg/m ³	TWA: 10 mg/m ³ TWA: 5 mg/m ³ TWA: 15 mg/m ³	
ETHYLENEDIAMINE 107-15-3	TWA: 10 ppm Skin	TWA: 10 ppm TWA: 25 mg/m ³	1000 ppm
ZIRCONIUM OXIDE 1314-23-4	TWA: 5 mg/m ³	-	25 mg/m ³
ETHYLENE GLYCOL MONOBUTYL ETHER 111-76-2	TWA: 20 ppm	TWA: 25 ppm TWA: 120 mg/m ³ Skin TWA: 50 ppm TWA: 240 mg/m ³	700 ppm
IRON OXIDE FUME 1309-37-1	TWA: 5 mg/m ³	TWA: 10 mg/m ³ TWA: 5 mg/m ³ TWA: 15 mg/m ³	2500 mg/m ³
BARIUM SULFATE (TOTAL DUST) 7727-43-7	TWA: 5 mg/m ³	TWA: 10 mg/m ³ TWA: 5 mg/m ³ TWA: 15 mg/m ³	
COPPER COMPOUNDS 147-14-8	TWA: 1 mg/m ³	-	100 mg/m ³
COPPER COMPOUND 28654-73-1	TWA: 1 mg/m ³	-	100 mg/m ³
BARIUM SULFATE (TOTAL DUST) 7727-43-7	TWA: 5 mg/m ³	TWA: 10 mg/m ³ TWA: 5 mg/m ³ TWA: 15 mg/m ³	

NIOSH IDLH: Immediately Dangerous to Life or Health

Appropriate engineering controls

Engineering measures

Sufficient ventilation, in volume and pattern, should be provided through both local and general exhaust to keep the air contaminant concentration below current applicable OSHA Permissible Exposure Limits (PEL) and ACGIH's Threshold Limit Values (TLV). Appropriate ventilation should be employed to remove hazardous decomposition products formed during welding or flame cutting operations of surfaces coated with this product.

Individual protection measures, such as personal protective equipment

Eye/face protection

Goggles If splashes are likely to occur, wear face-shield. Use chemical resistant splash type goggles.

Skin and body protection

Wear protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection

Use only with adequate ventilation. Do not breathe vapors, spray mist, or dust. Ensure fresh air entry during application and drying. If you experience eye watering, headache or dizziness or if air monitoring demonstrates vapor/mist or dust levels are above applicable limits, wear an appropriate, properly fitted respirator (NIOSH/MSHA approved) during and after application. Follow respirator manufacturer's directions for respirator use.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice.
Avoid breathing dust created by cutting, sanding, or grinding.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	liquid	Odor	Slight
Appearance	opaque	Odor threshold	No information available
Color	No information available		
Property	Values	Remarks	
pH		No data available	
Melting point / freezing point		No data available	
Boiling point / boiling range	116 °C / 241.0 °F		
Flash point	33 °C / 91.0 °F	Pensky Martens - Closed Cup	
Evaporation rate		No data available	
Flammability (solid, gas)		Not applicable	
Flammability Limit in Air		No data available	
Upper flammability limit	N/A		
Lower flammability limit	1.0		
Vapor pressure		No data available	
Vapor density		No data available	
Specific gravity	1.83194	g/cm3	
Water solubility	Insoluble in cold water		
Solubility in other solvents		No data available	
Partition coefficient: n-octanol/water		No data available	
Autoignition temperature		No data available	
Decomposition temperature		No data available	
Kinematic viscosity		No data available	
Dynamic viscosity	2100 centipoises	approx	

Other Information

Density	15.27842 lbs/gal
Volatile organic compounds (VOC) content	1.57368 lbs/gal
Total volatiles weight percent	10.3 %
Total volatiles volume percent	21.88 %

10. STABILITY AND REACTIVITY

Reactivity

No data available

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

None under normal processing.

Conditions to avoid

Heat, flames and sparks. Epoxy constituents.

Incompatible materials

Strong oxidizing agents, Bases, Acids

Hazardous decomposition products

Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. Carbon oxides. Nitrogen oxides (NOx). Hydrocarbons. Ammonia.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation	HARMFUL BY INHALATION. IRRITATING TO RESPIRATORY SYSTEM. May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination. May cause sensitization of susceptible persons.
Eye contact	Causes serious eye damage.
Skin contact	Irritating to skin. May cause sensitization of susceptible persons.
Ingestion	Harmful if swallowed.

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
CRYSTALLINE SILICA (QUARTZ) 14808-60-7	= 500 mg/kg (Rat)		
TITANIUM DIOXIDE (TOTAL DUST) 13463-67-7	> 10000 mg/kg (Rat)		
XYLENE 1330-20-7	= 3500 mg/kg (Rat)	> 1700 mg/kg (Rabbit) > 4350 mg/kg (Rabbit)	= 5000 ppm (Rat) 4 h = 29.08 mg/L (Rat) 4 h
CRYSTALLINE SILICA (QUARTZ) 14808-60-7	= 500 mg/kg (Rat)		
BENZYL ALCOHOL 100-51-6	= 1230 mg/kg (Rat)	= 2 g/kg (Rabbit)	= 8.8 mg/L (Rat) 4 h
ETHYL BENZENE 100-41-4	= 3500 mg/kg (Rat)	= 15400 mg/kg (Rabbit)	= 17.2 mg/L (Rat) 4 h
N-BUTANOL (SKIN) 71-36-3	= 700 mg/kg (Rat) = 790 mg/kg (Rat)	= 3402 mg/kg (Rabbit) = 3400 mg/kg (Rabbit)	> 8000 ppm (Rat) 4 h
AMORPHOUS SILICA 7631-86-9	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 2.2 mg/L (Rat) 1 h
MODIFIED ALIPHATIC AMINE 1477-55-0	= 660 mg/kg (Rat)	= 2 g/kg (Rabbit)	= 700 ppm (Rat) 1 h
M-XYLENEDIAMINE 1477-55-0	= 660 mg/kg (Rat)	= 2 g/kg (Rabbit)	= 700 ppm (Rat) 1 h
ALUMINUM OXIDES 1344-28-1	> 5000 mg/kg (Rat)		
ALUMINUM HYDROXIDE 21645-51-2	> 5000 mg/kg (Rat)		
ETHYLENEDIAMINE 107-15-3	= 637 mg/kg (Rat)	= 560 mg/kg (Rabbit)	
ETHYLENE GLYCOL MONOBUTYL ETHER 111-76-2	= 470 mg/kg (Rat)	= 99 mg/kg (Rabbit)	= 450 ppm (Rat) 4 h
IRON OXIDE FUME 1309-37-1	> 10000 mg/kg (Rat)		

Information on toxicological effects

Symptoms	Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Respiratory disorders. Skin disorders. Irritating to eyes and skin.
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Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity	NOTICE: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal. Cancer hazard. Contains crystalline silica which can cause cancer. (Risk of cancer depends on duration and level of exposure). May cause sensitization by inhalation and skin contact.			
Sensitization	May cause sensitization of susceptible persons.			
Mutagenicity	May cause genetic defects.			
Carcinogenicity	The table below indicates whether each agency has listed any ingredient as a carcinogen.			
Component	ACGIH	IARC	NTP	OSHA

CRYSTALLINE SILICA (QUARTZ) 14808-60-7	A2	Group 1	Known	X
TALC (RESPIRABLE DUST) 14807-96-6		Group 3		
TITANIUM DIOXIDE (TOTAL DUST) 13463-67-7		Group 2B		X
XYLENE 1330-20-7		Group 3		
CRYSTALLINE SILICA (QUARTZ) 14808-60-7	A2	Group 1	Known	X
ETHYL BENZENE 100-41-4	A3	Group 2B		X
AMORPHOUS SILICA 7631-86-9		Group 3		
ETHYLENE GLYCOL MONOBUTYL ETHER 111-76-2	A3	Group 3		
IRON OXIDE FUME 1309-37-1		Group 3		

Reproductive effects

May damage fertility or the unborn child.

STOT - single exposure

No information available

STOT - repeated exposure

Causes damage to organs through prolonged or repeated exposure blood, Central nervous system, Central Vascular System (CVS), Gastrointestinal tract, Eyes, kidney, liver, respiratory system, Skin.

Target organ effects**Aspiration hazard**

No information available.

Acute Toxicity

16.83658 % of the mixture consists of ingredient(s) of unknown toxicity.

The following values are calculated based on chapter 3.1 of the GHS document . mg/kg mg/l

12. ECOLOGICAL INFORMATION

Ecotoxicity

43.86190321 % of the mixture consists of components(s) of unknown hazards to the aquatic environment

Component	Toxicity to algae	Toxicity to fish	Toxicity to daphnia
TALC (RESPIRABLE DUST) 14807-96-6		100: 96 h Brachydanio rerio g/L LC50 semi-static	
XYLENE 1330-20-7		LC50= 13.4 mg/L Pimephales promelas 96 h LC50 2.661 - 4.093 mg/L Oncorhynchus mykiss 96 h LC50 13.5 - 17.3 mg/L Oncorhynchus mykiss 96 h LC50 13.1 - 16.5 mg/L Lepomis macrochirus 96 h LC50= 19 mg/L Lepomis macrochirus 96 h LC50 7.711 - 9.591 mg/L Lepomis macrochirus 96 h LC50 23.53 - 29.97 mg/L Pimephales promelas 96 h LC50= 780 mg/L Cyprinus carpio 96 h LC50> 780 mg/L Cyprinus carpio 96 h LC50 30.26 - 40.75 mg/L Poecilia reticulata 96 h	EC50 = 3.82 mg/L 48 h LC50 = 0.6 mg/L 48 h
BENZYL ALCOHOL 100-51-6	35: 3 h Anabaena variabilis mg/L EC50	460: 96 h Pimephales promelas mg/L LC50 static 10: 96 h Lepomis macrochirus mg/L LC50 static	23: 48 h water flea mg/L EC50

ETHYL BENZENE 100-41-4	4.6: 72 h Pseudokirchneriella subcapitata mg/L EC50 438: 96 h Pseudokirchneriella subcapitata mg/L EC50 2.6 - 11.3: 72 h Pseudokirchneriella subcapitata mg/L EC50 static 1.7 - 7.6: 96 h Pseudokirchneriella subcapitata mg/L EC50 static	11.0 - 18.0: 96 h Oncorhynchus mykiss mg/L LC50 static 4.2: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 7.55 - 11: 96 h Pimephales promelas mg/L LC50 flow-through 32: 96 h Lepomis macrochirus mg/L LC50 static 9.1 - 15.6: 96 h Pimephales promelas mg/L LC50 static 9.6: 96 h Poecilia reticulata mg/L LC50 static	1.8 - 2.4: 48 h Daphnia magna mg/L EC50
N-BUTANOL (SKIN) 71-36-3	500: 96 h Desmodesmus subspicatus mg/L EC50 500: 72 h Desmodesmus subspicatus mg/L EC50	1730 - 1910: 96 h Pimephales promelas mg/L LC50 static 1740: 96 h Pimephales promelas mg/L LC50 flow-through 100000 - 500000: 96 h Lepomis macrochirus µg/L LC50 static 1910000: 96 h Pimephales promelas µg/L LC50 static	1983: 48 h Daphnia magna mg/L EC50 1897 - 2072: 48 h Daphnia magna mg/L EC50 Static
AMORPHOUS SILICA 7631-86-9	440: 72 h Pseudokirchneriella subcapitata mg/L EC50	5000: 96 h Brachydanio rerio mg/L LC50 static	7600: 48 h Ceriodaphnia dubia mg/L EC50
ETHYLENEDIAMINE 107-15-3	645: 72 h Pseudokirchneriella subcapitata mg/L EC50 151: 96 h Pseudokirchneriella subcapitata mg/L EC50	98.6 - 131.6: 96 h Pimephales promelas mg/L LC50 static 191 - 254: 96 h Pimephales promelas mg/L LC50 flow-through 115.7: 96 h Pimephales promelas mg/L LC50 semi-static 180 - 560: 96 h Poecilia reticulata mg/L LC50 semi-static	17: 48 h Daphnia magna mg/L EC50
ETHYLENE GLYCOL MONOBUTYL ETHER 111-76-2		1490: 96 h Lepomis macrochirus mg/L LC50 static 2950: 96 h Lepomis macrochirus mg/L LC50	1000: 48 h Daphnia magna mg/L EC50 1698 - 1940: 24 h Daphnia magna mg/L EC50
YELLOW IRON OXIDE 51274-00-1		EC50: > 1,000 mg/l (Golden orfe (Leuciscus idus), 48 h)	
COPPER COMPOUNDS 147-14-8		100: 48 h Oryzias latipes mg/L LC50 static	

Persistence and degradability

No information available.

Bioaccumulation

No information available.

Mobility in Environmental Media

Component	log Pow
XYLENE 1330-20-7	2.77
BENZYL ALCOHOL 100-51-6	1.1
ETHYL BENZENE 100-41-4	3.118
N-BUTANOL (SKIN) 71-36-3	0.785
M-XYLENEDIAMINE 1477-55-0	0.18
ETHYLENEDIAMINE 107-15-3	-1.221
ETHYLENE GLYCOL MONOBUTYL ETHER 111-76-2	0.81
COPPER COMPOUNDS 147-14-8	6.6

Other Adverse Effects

No information available

13. DISPOSAL CONSIDERATIONS**Waste treatment methods**

Disposal Methods

Keep container tightly closed. If spilled, contain spilled material and remove with inert absorbent. Dispose of contaminated absorbent, container and unused contents in accordance with local, state and federal regulations.

Contaminated packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal.

Component	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
XYLENE 1330-20-7		Included in waste stream: F039		U239
ETHYL BENZENE 100-41-4		Included in waste stream: F039		
N-BUTANOL (SKIN) 71-36-3		Included in waste stream: F039		U031

California Hazardous Waste Status

This product contains one or more substances that are listed with the State of California as a hazardous waste

Component	CAWAST
XYLENE 1330-20-7	Toxic Ignitable
ETHYL BENZENE 100-41-4	Toxic Ignitable
N-BUTANOL (SKIN) 71-36-3	Toxic
ETHYLENEDIAMINE 107-15-3	Toxic
COPPER COMPOUNDS 147-14-8	Toxic
COPPER COMPOUND 28654-73-1	Toxic

14. TRANSPORT INFORMATION

DOT

UN/ID no. 1263
 Proper Shipping Name paint
 Hazard Class 3
 Packing Group III
 Emergency Response Guide Number 128

IATA

UN/ID no. 1263
 Proper Shipping Name paint
 Hazard Class 3
 Subsidiary Hazard Class III
 ERG Code 366

UN/ID no. 1263
 Hazard Class 3
 Packing Group III

Additional information

Call TNEDEC Traffic Department - 816-474-3400 for additional information or other modes of Transportation.

15. REGULATORY INFORMATION

International Inventories

TSCA Complies
 DSL/NDL Does not comply
 EINECS/ELINCS Does not comply

ENCS	Does not comply
IECSC	Complies
KECL	Does not comply
PICCS	Does not comply
AICS	Does not comply

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

Component	HAPS Data
XYLENE	
ETHYL BENZENE	
ETHYLENE GLYCOL MONOBUTYL ETHER	

United States of America

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and and Title 40n of the Code of Federal Regulations, Part 372:

Component	SARA 313 - Threshold Values
XYLENE - 1330-20-7	1.0
ETHYL BENZENE - 100-41-4	0.1
N-BUTANOL (SKIN) - 71-36-3	1.0
ALUMINUM OXIDES - 1344-28-1	1.0
ETHYLENE GLYCOL MONOBUTYL ETHER - 111-76-2	1.0
BARIUM SULFATE (TOTAL DUST) - 7727-43-7	1.0
COPPER COMPOUNDS - 147-14-8	1.0
COPPER COMPOUND - 28654-73-1	1.0
BARIUM SULFATE (TOTAL DUST) - 7727-43-7	1.0

SARA 311/312 Hazardous

Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Component	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
XYLENE 1330-20-7	100 lb			X
ETHYL BENZENE 100-41-4	1000 lb	X	X	X
ETHYLENEDIAMINE 107-15-3	5000 lb			X
COPPER COMPOUNDS 147-14-8		X		
COPPER COMPOUND 28654-73-1		X		

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs	RQ
XYLENE 1330-20-7	100 lb		RQ 100 lb final RQ RQ 45.4 kg final RQ

ETHYL BENZENE 100-41-4	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ
N-BUTANOL (SKIN) 71-36-3	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ
ETHYLENEDIAMINE 107-15-3	5000 lb	5000 lb	RQ 5000 lb final RQ RQ 2270 kg final RQ

United States of America**California Prop. 65**

WARNING! This product contains a chemical known in the State of California to cause cancer

Component	California Prop. 65
CRYSTALLINE SILICA (QUARTZ) - 14808-60-7	Carcinogen
TITANIUM DIOXIDE (TOTAL DUST) - 13463-67-7	Carcinogen
CRYSTALLINE SILICA (QUARTZ) - 14808-60-7	Carcinogen
ETHYL BENZENE - 100-41-4	Carcinogen
ETHYLENE GLYCOL MONOBUTYL ETHER - 111-76-2	*

California SCAQMD Rule 443

Contains Photochemically Reactive Solvent

State Right-to-Know

Component	New Jersey	Massachusetts	Pennsylvania
CRYSTALLINE SILICA (QUARTZ) 14808-60-7	X	X	X
TALC (RESPIRABLE DUST) 14807-96-6	X	X	X
TITANIUM DIOXIDE (TOTAL DUST) 13463-67-7	X	X	X
XYLENE 1330-20-7	X	X	X
CRYSTALLINE SILICA (QUARTZ) 14808-60-7	X	X	X
BENZYL ALCOHOL 100-51-6		X	X
MICA (RESPIRABLE DUST) 12001-26-2	X	X	X
ETHYL BENZENE 100-41-4	X	X	X
N-BUTANOL (SKIN) 71-36-3	X	X	X
AMORPHOUS SILICA 7631-86-9	X	X	X
MODIFIED ALIPHATIC AMINE 1477-55-0	X	X	X
M-XYLENEDIAMINE 1477-55-0	X	X	X
ALUMINUM OXIDES 1344-28-1	X	X	X
MINERAL SPIRITS (STODDARD SOLVENT) 8052-41-3	X	X	X
MAGNESITE 546-93-0		X	
ALUMINUM SILICATE (TOTAL DUST) 1332-58-7	X	X	X
ETHYLENEDIAMINE 107-15-3	X	X	X
ZIRCONIUM OXIDE 1314-23-4		X	
ETHYLENE GLYCOL MONOBUTYL ETHER 111-76-2	X	X	X

IRON OXIDE FUME 1309-37-1	X	X	X
BARIUM SULFATE (TOTAL DUST) 7727-43-7	X	X	X
COPPER COMPOUNDS 147-14-8	X		X
COPPER COMPOUND 28654-73-1	X		X
BARIUM SULFATE (TOTAL DUST) 7727-43-7	X	X	X

16. OTHER INFORMATION

NFPA

Health 2

Flammability 3

Instability 1

Physical hazard *

HMIS (Hazardous Material Information System)

Health 2*

Flammability 3

Reactivity 1

Prepared By

Tnemec Regulatory Dept: 816-474-3400

Revision Date

02-Sep-2015

Revision Summary

9 2 5 7 10 8 11 14

Disclaimer

For specific information regarding occupational safety and health standards, please refer to the Code of Federal Regulations, Title 29, Part 1910.

To the best of our knowledge, the information contained herein is accurate. However, neither the Tnemec Company or any of its subsidiaries assume any liability whatsoever for the accuracy of completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist.

End of SDS



Safety Data Sheet

Issue Date 03-Jun-2015

Revision Date 03-Jun-2015

Revision Number 6

1. IDENTIFICATION

Product identifier

Product Code F141-0141B
Product Name EPOXOLINE CONVERTER

Other means of identification

Common Name SERIES 141 PART B

Recommended use of the chemical and restrictions on use

Recommended Use industrial paint.
Uses advised against Consumer use, For professional use only. Not for residential use.

Details of the supplier of the safety data sheet

Manufacturer Address
Tnemec Company, Inc. 6800 Corporate Drive, Kansas City, MO 64120-1372

Emergency telephone number

Company Phone Number Tnemec Regulatory Dept: 816-474-3400
24 Hour Emergency Phone Number 800-535-5053 (Infotrac)

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Dermal	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Skin sensitization	Category 1
Carcinogenicity	Category 2
Flammable Liquids	Category 3

Label elements

EMERGENCY OVERVIEW

WARNING

Hazard statements

Harmful in contact with skin
Causes skin irritation
Causes serious eye irritation
May cause an allergic skin reaction
Suspected of causing cancer
Flammable liquid and vapor

**Appearance** opaque**Physical state** liquid**Odor** Slight**Precautionary Statements****Prevention**

Obtain special instructions before use
 Do not handle until all safety precautions have been read and understood
 Use personal protective equipment as required
 Wash face, hands and any exposed skin thoroughly after handling
 Avoid breathing dust/fume/gas/mist/vapors/spray
 Contaminated work clothing should not be allowed out of the workplace
 Wear protective gloves
 Keep away from heat/sparks/open flames/hot surfaces. – No smoking
 Keep container tightly closed
 Ground/bond container and receiving equipment
 Use explosion-proof electrical/ventilating/lighting/mixing/equipment
 Use only non-sparking tools
 Take precautionary measures against static discharge

Response

IF exposed or concerned: Get medical advice/attention
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 If eye irritation persists: Get medical advice/attention
 Call a POISON CENTER or doctor/physician if you feel unwell
 If skin irritation or rash occurs: Get medical advice/attention
 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
 Wash contaminated clothing before reuse
 In case of fire: Use CO₂, dry chemical, or foam for extinction

Storage

Store locked up
 Store in a well-ventilated place. Keep cool
 Keep away from children

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)**Other information**

Toxic to aquatic life with long lasting effects
 SEE SAFETY DATA SHEET

Acute Toxicity

0 % of the mixture consists of ingredient(s) of unknown toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No	Weight-%
EPOXY RESIN (LER)	25085-99-8	60 - 100%
METHYL ISOBUTYL KETONE	108-10-1	1 - 10%
XYLENE	1330-20-7	1 - 10%
ETHYL BENZENE	100-41-4	0.1 - 1%

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures

General advice	If symptoms persist, call a physician.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes. If eye irritation persists, consult a specialist.
Skin contact	Wash off immediately with soap and plenty of water. If skin irritation persists, call a physician. Remove and wash contaminated clothing before re-use.
Inhalation	Remove to fresh air. Oxygen or artificial respiration if needed.
Ingestion	If swallowed, do not induce vomiting. Get medical attention immediately.
Self-protection of the first aider	Use personal protective equipment. Avoid contact with eyes, skin and clothing.

Most important symptoms and effects, both acute and delayed

Notes to physician	Treat symptomatically.
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5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Carbon dioxide. Foam. Dry chemical.

Unsuitable extinguishing media Water.

Specific hazards arising from the chemical

Thermal decomposition can lead to release of irritating gases and vapours In the event of fire and/or explosion do not breathe fumes

Hazardous combustion products Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. Carbon oxides. Hydrocarbons. Aldehydes.

Protective equipment and precautions for firefighters

Use water spray to cool unopened containers. In the event of fire, wear self-contained breathing apparatus. Keep away from heat/sparks/open flames/hot surfaces. MAY CAUSE HEAT AND PRESSURE BUILD-UP IN CLOSED CONTAINERS. Solvent vapors are heavier than air and may spread along floors. Flash back possible over considerable distance.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions	Avoid contact with eyes, skin and clothing. Use personal protective equipment. Remove all sources of ignition.
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Environmental Precautions

Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system.
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Methods and material for containment and cleaning up

Methods for containment Remove all sources of ignition. Spills may be collected with inert, absorbent material for proper disposal. Use non-sparking tools, protective gloves, goggles and clothing, adequate ventilation, avoid the breathing of vapors and use respiratory protective devices. Transfer absorbent material to suitable containers for proper disposal.

Methods for cleaning up If spilled, contain spilled material and remove with inert absorbent. Dispose of contaminated absorbent, container and unused contents in accordance with local, state and federal regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Close container after each use. Avoid contact with eyes, skin and clothing. Do not eat, drink or smoke when using this product. If splashes are likely to occur, wear goggles. Wear protective gloves/clothing. Do not burn, or use a cutting torch on, the empty drum. When used in a mixture, read the labels and safety data sheets of all components. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Storage Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children.

Incompatible products Strong oxidizing agents. Bases. Acids. Amines.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
METHYL ISOBUTYL KETONE 108-10-1	TWA: 20 ppm STEL: 75 ppm	TWA: 50 ppm TWA: 205 mg/m ³ STEL: 75 ppm STEL: 300 mg/m ³ TWA: 100 ppm TWA: 410 mg/m ³	500 ppm
XYLENE 1330-20-7	TWA: 100 ppm STEL: 150 ppm	TWA: 100 ppm TWA: 435 mg/m ³ STEL: 150 ppm STEL: 655 mg/m ³	
ETHYL BENZENE 100-41-4	TWA: 20 ppm	TWA: 100 ppm TWA: 435 mg/m ³ STEL: 125 ppm STEL: 545 mg/m ³	800 ppm

Appropriate engineering controls

Engineering measures Sufficient ventilation, in volume and pattern, should be provided through both local and general exhaust to keep the air contaminant concentration below current applicable OSHA Permissible Exposure Limits (PEL) and ACGIH's Threshold Limit Values (TLV). Appropriate ventilation should be employed to remove hazardous decomposition products formed during welding or flame cutting operations of surfaces coated with this product.

Individual protection measures, such as personal protective equipment

Eye/face protection Safety glasses with side-shields If splashes are likely to occur, wear face-shield.

Skin and body protection Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection

Use only with adequate ventilation. Do not breathe vapors, spray mist, or dust. Ensure fresh air entry during application and drying. If you experience eye watering, headache or dizziness or if air monitoring demonstrates vapor/mist or dust levels are above applicable limits, wear an appropriate, properly fitted respirator (NIOSH/MSHA approved) during and after application. Follow respirator manufacturer's directions for respirator use.

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice. Avoid breathing dust created by cutting, sanding, or grinding.

9. PHYSICAL AND CHEMICAL PROPERTIES
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Information on basic physical and chemical properties

Physical state	liquid	Odor	Slight
Appearance	opaque	Odor threshold	No information available
Color	No information available		
<u>Property</u>	<u>Values</u>	<u>Remarks</u>	
pH		No data available	
Melting point / freezing point		No data available	
Boiling point / boiling range	114 °C / 237.0 °F		
Flash point	44 °C / 111.0 °F	Pensky Martens - Closed Cup	
Evaporation rate		No data available	
Flammability (solid, gas)		Not applicable	
Flammability Limit in Air		No data available	
Upper flammability limit	N/A		
Lower flammability limit	1.0		
Vapor pressure		No data available	
Vapor density		No data available	
Specific gravity	1.12249	g/cm3	
Water solubility	Insoluble in cold water		
Solubility in other solvents		No data available	
Partition coefficient: n-octanol/water		No data available	
Autoignition temperature		No data available	
Decomposition temperature		No data available	
Kinematic viscosity		No data available	
Dynamic viscosity	1100 centipoises	approx	

Other Information

Density	9.36156 lbs/gal
Volatile organic compounds (VOC) content	0.69556 lbs/gal
Total volatiles weight percent	7.43 %
Total volatiles volume percent	10.2 %

10. STABILITY AND REACTIVITY

Reactivity

No data available

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

None under normal processing.

Conditions to avoid

Heat, flames and sparks. Amines.

Incompatible materials

Strong oxidizing agents, Bases, Acids, Amines

Hazardous decomposition products

Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. Carbon oxides. Hydrocarbons. Aldehydes.

11. TOXICOLOGICAL INFORMATION**Information on Likely Routes of Exposure**

Inhalation	May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination.
Eye contact	Causes serious eye irritation.
Skin contact	Irritating to skin. May cause sensitization of susceptible persons.
Ingestion	Harmful if swallowed.

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
METHYL ISOBUTYL KETONE 108-10-1	= 2080 mg/kg (Rat)	= 3000 mg/kg (Rabbit)	= 8.2 mg/L (Rat) 4 h
XYLENE 1330-20-7	= 3500 mg/kg (Rat)	> 1700 mg/kg (Rabbit) > 4350 mg/kg (Rabbit)	= 29.08 mg/L (Rat) 4 h = 5000 ppm (Rat) 4 h
ETHYL BENZENE 100-41-4	= 3500 mg/kg (Rat)	= 15400 mg/kg (Rabbit)	= 17.2 mg/L (Rat) 4 h

Information on toxicological effects

Symptoms Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Skin disorders.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity NOTICE: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal. Skin sensitizer.

Sensitization May cause sensitization of susceptible persons.

Mutagenicity No information available.

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	ACGIH	IARC	NTP	OSHA
METHYL ISOBUTYL KETONE 108-10-1	A3	Group 2B		X
XYLENE 1330-20-7		Group 3		
ETHYL BENZENE 100-41-4	A3	Group 2B		X

Reproductive effects No information available.

STOT - single exposure No information available

STOT - repeated exposure No information available

Aspiration hazard Not applicable.

Acute Toxicity 0 % of the mixture consists of ingredient(s) of unknown toxicity.

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Toxic to aquatic life with long lasting effects

0 % of the mixture consists of components(s) of unknown hazards to the aquatic environment

Component	Toxicity to algae	Toxicity to fish	Toxicity to daphnia
EPOXY RESIN (LER) 25085-99-8	11 mg/L 72 hr	2 mg/L 96 hr Oncorhynchus mykiss	1.8 mg/L 48h
METHYL ISOBUTYL KETONE 108-10-1	400: 96 h Pseudokirchneriella subcapitata mg/L EC50	496 - 514: 96 h Pimephales promelas mg/L LC50 flow-through	170: 48 h Daphnia magna mg/L EC50
XYLENE 1330-20-7		LC50= 13.4 mg/L Pimephales promelas 96 h LC50 2.661 - 4.093 mg/L Oncorhynchus mykiss 96 h LC50 13.5 - 17.3 mg/L Oncorhynchus mykiss 96 h LC50 13.1 - 16.5 mg/L Lepomis macrochirus 96 h LC50= 19 mg/L Lepomis macrochirus 96 h LC50 7.711 - 9.591 mg/L Lepomis macrochirus 96 h LC50 23.53 - 29.97 mg/L Pimephales promelas 96 h LC50= 780 mg/L Cyprinus carpio 96 h LC50> 780 mg/L Cyprinus carpio 96 h LC50 30.26 - 40.75 mg/L Poecilia reticulata 96 h	EC50 = 3.82 mg/L 48 h LC50 = 0.6 mg/L 48 h
ETHYL BENZENE 100-41-4	4.6: 72 h Pseudokirchneriella subcapitata mg/L EC50 438: 96 h Pseudokirchneriella subcapitata mg/L EC50 2.6 - 11.3: 72 h Pseudokirchneriella subcapitata mg/L EC50 static 1.7 - 7.6: 96 h Pseudokirchneriella subcapitata mg/L EC50 static	11.0 - 18.0: 96 h Oncorhynchus mykiss mg/L LC50 static 32: 96 h Lepomis macrochirus mg/L LC50 static 4.2: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 7.55 - 11: 96 h Pimephales promelas mg/L LC50 flow-through 9.6: 96 h Poecilia reticulata mg/L LC50 static 9.1 - 15.6: 96 h Pimephales promelas mg/L LC50 static	1.8 - 2.4: 48 h Daphnia magna mg/L EC50

Persistence and degradability

No information available.

Bioaccumulation

No information available.

Mobility in Environmental Media

Component	log Pow
METHYL ISOBUTYL KETONE 108-10-1	1.19
XYLENE 1330-20-7	2.77
ETHYL BENZENE 100-41-4	3.118

Other Adverse Effects

No information available

13. DISPOSAL CONSIDERATIONS**Waste treatment methods****Disposal Methods**

Keep container tightly closed. If spilled, contain spilled material and remove with inert absorbent. Dispose of contaminated absorbent, container and unused contents in accordance with local, state and federal regulations.

Contaminated packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal.

Component	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
METHYL ISOBUTYL KETONE 108-10-1		Included in waste stream: F039		U161
XYLENE 1330-20-7		Included in waste stream: F039		U239

ETHYL BENZENE 100-41-4		Included in waste stream: F039		
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Component	CAWAST
XYLENE 1330-20-7	Toxic Ignitable
ETHYL BENZENE 100-41-4	Toxic Ignitable

14. TRANSPORT INFORMATION

DOT

Proper Shipping Name paint in oil Not regulated

IATA

UN/ID no. 1263
Proper Shipping Name paint
Hazard Class 3
Packing Group III
ERG Code 366

Additional information

Call TNEMEC Traffic Department - 816-474-3400 for additional information or other modes of Transportation.

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL/NDL	Complies
EINECS/ELINCS	Does not comply
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

Component	HAPS Data
METHYL ISOBUTYL KETONE	
XYLENE	
ETHYL BENZENE	

United States of America

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Component	SARA 313 - Threshold Values
METHYL ISOBUTYL KETONE - 108-10-1	1.0
XYLENE - 1330-20-7	1.0

ETHYL BENZENE - 100-41-4	0.1
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SARA 311/312 Hazardous**Categorization**

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Component	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
XYLENE 1330-20-7	100 lb			X
ETHYL BENZENE 100-41-4	1000 lb	X	X	X

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs	RQ
METHYL ISOBUTYL KETONE 108-10-1	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ
XYLENE 1330-20-7	100 lb		RQ 100 lb final RQ RQ 45.4 kg final RQ
ETHYL BENZENE 100-41-4	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ

United States of America**California Prop. 65**

WARNING! This product contains a chemical known in the State of California to cause cancer

Component	California Prop. 65
METHYL ISOBUTYL KETONE - 108-10-1	Carcinogen Developmental
ETHYL BENZENE - 100-41-4	Carcinogen

California SCAQMD Rule 443

Contains Photochemically Reactive Solvent

State Right-to-Know

Component	New Jersey	Massachusetts	Pennsylvania
METHYL ISOBUTYL KETONE 108-10-1	X	X	X
XYLENE 1330-20-7	X	X	X
ETHYL BENZENE 100-41-4	X	X	X

16. OTHER INFORMATION**NFPA**

Health 2

Flammability 2

Instability 1

Physical hazard *

**HMIS (Hazardous
Material Information
System)**

Health 2*

Flammability 2

Reactivity 1

Prepared By
Revision Date
Revision Summary
9 4 5 7 10 8 11 14

Tnemec Regulatory Dept: 816-474-3400
03-Jun-2015

Disclaimer

For specific information regarding occupational safety and health standards, please refer to the Code of Federal Regulations, Title 29, Part 1910.

To the best of our knowledge, the information contained herein is accurate. However, neither the Tnemec Company or any of its subsidiaries assume any liability whatsoever for the accuracy of completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist.

End of MSDS



F.C. TYPOXY® SERIES 27

PRODUCT PROFILE

GENERIC DESCRIPTION	Polyamide Epoxy
COMMON USAGE	Versatile low-temperature coating ideally suited for steel fabrication and OEM applications. Also widely used as a field tie-coat. Provides fast curing and rapid handling capabilities. Note: Series 27 conforms with air pollution regulations limiting Volatile Organic Compounds (VOC) to a maximum of 340 grams/litre (2.8 lbs/gal).
COLORS	Refer to Tnemec Color Guide. Note: Epoxies chalk with extended exposure to sunlight. Lack of ventilation, incomplete mixing, miscatalyzation or the use of heaters that emit carbon dioxide and carbon monoxide during application and initial stages of curing may cause yellowing to occur.
FINISH	Flat
PERFORMANCE CRITERIA	Extensive test data available. Contact your Tnemec representative for specific test results.

COATING SYSTEM

PRIMERS	Steel: Self-priming or Series 1, 37H, 66, L69, L69F, N69, N69F, V69, V69F, 90, 94-H ₂ O, 135, 394, 530 Galvanized Steel and Non-Ferrous Metal: Self-priming, Series 66 or L69, L69F, N69, N69F, V69, V69F.
TOPCOATS	Series 2H, 30, 66, 73, 113, 114, 115, 175, 700, V700, 701, V701, 1028, 1029, 1070, 1070V, 1071, 1071V, 1072, 1072V, 1074, 1075, 1077, 1078, 1078V. Note: Series 27 exterior exposed for 3 weeks or longer requires an epoxy intermediate coat or scarification prior to topcoating with Series 2H. When topcoating with Series 700, V700, 701, V701, 1070, 1070V, 1071, 1071V, 1072, 1072V, 1078, or 1078V over Series 27, a 14 day maximum recoat time applies. Refer to appropriate topcoat data sheet for additional information.

SURFACE PREPARATION

STEEL	SSPC-SP6/NACE 3 Commercial Blast Cleaning
GALVANIZED STEEL & NON-FERROUS METAL	Surface preparation recommendations will vary depending on substrate and exposure conditions. Contact your Tnemec representative or Tnemec Technical Services.
OVERCOATING	For overcoat applications, reference Tnemec Technical Bulletin No. 98-10 and contact your Tnemec representative.
ALL SURFACES	Must be clean, dry and free of oil, grease and other contaminants.

TECHNICAL DATA

VOLUME SOLIDS	58.0 ± 2.0% (mixed) †
RECOMMENDED DFT	2.0 to 6.0 mils (50 to 150 microns) per coat. Note: Number of coats and thickness requirements will vary with substrate, application method and exposure. Contact your Tnemec representative.

CURING TIME

Temperature	To Touch	To Handle	To Recoat
75°F (24°C)	1/2 hour	2 hours	3 hours
65°F (18°C)	3/4 hour	4 hours	5-6 hours
55°F (11°C)	1 hour	4-5 hours	6-8 hours
45°F (7°C)	1-2 hours	6-8 hours	9-12 hours
35°F (2°C)	2-3 hours	9-12 hours	12-15 hours

Curing time varies with surface temperature, air movement, humidity and film thickness.

VOLATILE ORGANIC COMPOUNDS

Unthinned: 2.36 lbs/gallon (282 grams/litre)
Thinned 10% (No. 60 Thinner): 2.83 lbs/gallon (339 grams/litre)
Thinned 10% (No. 4 Thinner): 2.83 lbs/gallon (339 grams/litre) †

HAPS

Unthinned: 2.59 lbs/gal solids
Thinned 10% (No. 60 Thinner): 2.59 lbs/gal solids
Thinned 10% (No. 4 Thinner): 3.54 lbs/gal solids

THEORETICAL COVERAGE 930 mil sq ft/gal (22.8 m²/L at 25 microns). See APPLICATION for coverage rates. †

NUMBER OF COMPONENTS Two: Part A and Part B

PACKAGING 5 gallon (18.9L) pails and 1 gallon (3.79L) cans — Order in multiples of 2.

NET WEIGHT PER GALLON 14.22 ± 0.25 lbs (6.45 ± .11 kg) (mixed) †

STORAGE TEMPERATURE Minimum 20°F (-7°C) Maximum 110°F (43°C)

TEMPERATURE RESISTANCE (Dry) Continuous 250°F (121°C) Intermittent 275°F (135°C)

SHELF LIFE 24 months at recommended storage temperature.

FLASH POINT - SETA Part A: 82°F (28°C) Part B: 80°F (27°C)

HEALTH & SAFETY Paint products contain chemical ingredients which are considered hazardous. Read container label warning and Material Safety Data Sheet for important health and safety information prior to the use of this product.
Keep out of the reach of children.

F.C. TYPOXY® | SERIES 27

APPLICATION

COVERAGE RATES

	Dry Mils (Microns)	Wet Mils (Microns)	Sq Ft/Gal (m ² /Gal)
Suggested (1)	4.0 (100)	7.0 (180)	233 (21.6)
Minimum	2.0 (50)	3.5 (90)	465 (43.2)
Maximum	6.0 (150)	10.5 (265)	155 (14.4)

(1) **Note:** Roller or brush application requires two or more coats to obtain recommended film thickness. Allow for overspray and surface irregularities. Wet film thickness is rounded to the nearest 0.5 mil or 5 microns. Application of coating below minimum or above maximum recommended dry film thicknesses may adversely affect coating performance. †

MIXING

Power mix contents of each container, making sure no pigment remains on the bottom. Pour a measured amount of Part B into a clean container large enough to hold both components. Add an equal volume of Part A to Part B while under agitation. Continue agitation until the two components are thoroughly mixed. Do not use mixed material beyond pot life limits. **Note:** Both components should be above 50°F (10°C) prior to mixing. For applications to surfaces between 35°F to 50°F (2°C to 10°C), allow mixed material to stand thirty (30) minutes and restir before using. For optimum application properties, the material temperature should be above 60°F (16°C).

THINNING

Use No. 60 or No. 4 Thinner. For air spray, thin up to 10% or 3/4 pint (380 mL) per gallon. For airless spray, brush or roller, thin up to 5% or 1/4 pint (190 mL) per gallon.

POT LIFE

16 hours at 35°F (2°C) 2 hours at 77°F (25°C) 1/2 hour at 100°F (38°C)

APPLICATION EQUIPMENT

Air Spray

Gun	Fluid Tip	Air Cap	Air Hose ID	Mat'l Hose ID	Atomizing Pressure	Pot Pressure
DeVilbiss JGA	E	765 or 704	5/16" or 3/8" (7.9 or 9.5 mm)	3/8" or 1/2" (9.5 or 12.7 mm)	75-100 psi (5.2-6.9 bar)	25-35 psi (1.7-2.4 bar)

Low temperatures or longer hoses require higher pot pressure.

Airless Spray

Tip Orifice	Atomizing Pressure	Mat'l Hose ID	Manifold Filter
0.015"-0.019" (380-485 microns)	4000-4800 psi (276-331 bar)	1/4" or 3/8" (6.4 or 9.5 mm)	60 mesh (250 microns)

Use appropriate tip/atomizing pressure for equipment, applicator technique and weather conditions.

Note: Application over inorganic zinc-rich primers: Apply a wet mist coat and allow tiny bubbles to form. When bubbles disappear in 1 to 2 minutes, apply a full wet coat at specified mil thickness.

Roller: Roller application optional when environmental restrictions do not allow spraying. Use 3/8" or 1/2" (9.5 mm to 12.7 mm) synthetic woven nap covers.

Brush: Recommended for small areas only. Use high quality natural or synthetic bristle brushes.

SURFACE TEMPERATURE

Minimum 35°F (2°C) Maximum 135°F (57°C)

The surface should be dry and at least 5°F (3°C) above the dew point. Coating won't cure below minimum surface temperature.

CLEANUP

Flush and clean all equipment immediately after use with the recommended thinner or MEK.

†Values may vary with color.

WARRANTY & LIMITATION OF SELLER'S LIABILITY: Tnemec Company, Inc. warrants only that its coatings represented herein meet the formulation standards of Tnemec Company, Inc. THE WARRANTY DESCRIBED IN THE ABOVE PARAGRAPH SHALL BE IN LIEU OF ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. The buyer's sole and exclusive remedy against Tnemec Company, Inc. shall be for replacement of the product in the event a defective condition of the product should be found to exist and the exclusive remedy shall not have failed its essential purpose as long as Tnemec is willing to provide comparable replacement product to the buyer. NO OTHER REMEDY (INCLUDING, BUT NOT LIMITED TO, INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR LOST PROFITS, LOST SALES, INJURY TO PERSON OR PROPERTY, ENVIRONMENTAL INJURIES OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL LOSS) SHALL BE AVAILABLE TO THE BUYER. Technical and application information herein is provided for the purpose of establishing a general profile of the coating and proper coating application procedures. Test performance results were obtained in a controlled environment and Tnemec Company makes no claim that these tests or any other tests, accurately represent all environments. As application, environmental and design factors can vary significantly, due care should be exercised in the selection and use of the coating.

Tnemec Company Incorporated 6800 Corporate Drive Kansas City, Missouri 64120-1372 1-800-TNEMEC1 Fax: 1-816-483-3969 www.tnemec.com



Safety Data Sheet

Issue Date 28-Sep-2015

Revision Date 28-Sep-2015

Revision Number 7

1. IDENTIFICATION

Product identifier

Product Code F027-00WHA
Product Name F. C. TYPOXY TNEMEC WHITE

Other means of identification

Common Name SERIES 27 PART A
UN/ID no. 1263

Recommended use of the chemical and restrictions on use

Recommended Use industrial paint.
Uses advised against Consumer use, For professional use only. Not for residential use.

Details of the supplier of the safety data sheet

Manufacturer Address

Tnemec Company, Inc. 6800 Corporate Drive, Kansas City, MO 64120-1372

Distributor

Tnemec Company, Inc. 86 Boul, des Entreprises, Ste. 203
Boisbriand, Quebec Canada J7G 2T3

Emergency telephone number

Company Phone Number Tnemec Regulatory Dept: 816-474-3400
24 Hour Emergency Phone Number 800-535-5053 (Infotrac)

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2
Skin sensitization	Category 1
Germ cell mutagenicity	Category 1B
Carcinogenicity	Category 1B
Reproductive Toxicity	Category 2
Specific target organ toxicity (repeated exposure)	Category 1
Flammable Liquids	Category 3

Label elements

EMERGENCY OVERVIEW

Danger

Hazard statements

Harmful if swallowed
Causes skin irritation
Causes serious eye irritation
May cause an allergic skin reaction
May cause genetic defects
May cause cancer
Suspected of damaging fertility or the unborn child
Causes damage to organs through prolonged or repeated exposure
Flammable liquid and vapor

**Appearance** opaque**Physical state** liquid**Odor** aromatic**Precautionary Statements****Prevention**

Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Do not breathe dust/fume/gas/mist/vapors/spray
Keep away from heat/sparks/open flames/hot surfaces. — No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/mixing/equipment
Use only non-sparking tools
Take precautionary measures against static discharge

Response

IF exposed or concerned: Get medical advice/attention
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
If skin irritation or rash occurs: Get medical advice/attention
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
In case of fire: Use CO₂, dry chemical, or foam for extinction

Storage

Store locked up
Store in a well-ventilated place. Keep cool

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)**Other information**

May be harmful in contact with skin
Harmful to aquatic life with long lasting effects
Harmful to aquatic life
Acute Toxicity

11.1697367 % of the mixture consists of ingredient(s) of unknown toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No	Weight-%
TALC (RESPIRABLE DUST)	14807-96-6	10 - 30%
BARIUM SULFATE (TOTAL DUST)	7727-43-7	10 - 30%
TITANIUM DIOXIDE (TOTAL DUST)	13463-67-7	10 - 30%
XYLENE	1330-20-7	10 - 30%
ETHYL BENZENE	100-41-4	1 - 10%
N-BUTANOL (SKIN)	71-36-3	1 - 10%
MODIFIED ALIPHATIC AMINE	90-72-2	1 - 10%
AROMATIC HYDROCARBON MIXTURE	64742-95-6	1 - 10%
1,2,4-TRIMETHYLBENZENE	95-63-6	1 - 10%
AMORPHOUS SILICA	7631-86-9	1 - 10%
TRIETHYLENE TETRAMINE	112-24-3	0.1 - 1%
BENZENE, 1,3-DIMETHYL	108-38-3	0.1 - 1%
DIETHYLBENZENE	25340-17-4	0.1 - 1%

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures

General advice	If symptoms persist, call a physician.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If symptoms persist, call a physician.
Inhalation	Remove to fresh air. Oxygen or artificial respiration if needed.
Ingestion	If swallowed, do not induce vomiting. Get medical attention immediately.
Self-protection of the first aider	Use personal protective equipment. Avoid contact with eyes, skin and clothing.

Most important symptoms and effects, both acute and delayed

Notes to physician	Treat symptomatically.
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5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Carbon dioxide. Foam. Dry chemical.

Unsuitable extinguishing media Water.

Specific hazards arising from the chemical

Thermal decomposition can lead to release of irritating gases and vapours In the event of fire and/or explosion do not breathe fumes

Hazardous combustion products Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. Carbon oxides. Hydrocarbons. Aldehydes. Nitrogen oxides (NOx).

Protective equipment and precautions for firefighters

Use water spray to cool unopened containers. In the event of fire, wear self-contained breathing apparatus. Keep away from heat/sparks/open flames/hot surfaces. MAY CAUSE HEAT AND PRESSURE BUILD-UP IN CLOSED CONTAINERS. Solvent vapors are heavier than air and may spread along floors. Flash back possible over considerable distance.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment and emergency procedures**

Personal precautions Avoid contact with eyes, skin and clothing. Use personal protective equipment. Remove all sources of ignition.

Environmental Precautions

Environmental precautions Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system.

Methods and material for containment and cleaning up

Methods for containment Remove all sources of ignition. Spills may be collected with inert, absorbent material for proper disposal. Use non-sparking tools, protective gloves, goggles and clothing, adequate ventilation, avoid the breathing of vapors and use respiratory protective devices. Transfer absorbent material to suitable containers for proper disposal.

Methods for cleaning up If spilled, contain spilled material and remove with inert absorbent. Dispose of contaminated absorbent, container and unused contents in accordance with local, state and federal regulations.

7. HANDLING AND STORAGE**Precautions for safe handling**

Handling Close container after each use. Avoid contact with eyes, skin and clothing. Do not eat, drink or smoke when using this product. If splashes are likely to occur, wear goggles. Wear protective gloves/clothing. Do not burn, or use a cutting torch on, the empty drum. When used in a mixture, read the labels and safety data sheets of all components. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Storage Keep container tightly closed in a dry and well-ventilated place. Keep away from heat, sparks and flame. VAPORS MAY CAUSE FLASH FIRE. Keep out of the reach of children.

Incompatible products Strong oxidizing agents. Water, alcohols, amines, strong bases, metal components, surface active materials. Bases.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Control parameters****Exposure guidelines**

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
TALC (RESPIRABLE DUST) 14807-96-6	TWA: 2 mg/m ³	TWA: 2 mg/m ³	1000 mg/m ³
BARIUM SULFATE (TOTAL DUST) 7727-43-7	TWA: 5 mg/m ³	TWA: 10 mg/m ³ TWA: 5 mg/m ³ TWA: 15 mg/m ³	
TITANIUM DIOXIDE (TOTAL DUST) 13463-67-7	TWA: 10 mg/m ³	TWA: 10 mg/m ³ TWA: 15 mg/m ³	5000 mg/m ³

XYLENE 1330-20-7	TWA: 100 ppm STEL: 150 ppm	TWA: 100 ppm TWA: 435 mg/m ³ STEL: 150 ppm STEL: 655 mg/m ³	
ETHYL BENZENE 100-41-4	TWA: 20 ppm	TWA: 100 ppm TWA: 435 mg/m ³ STEL: 125 ppm STEL: 545 mg/m ³	800 ppm
N-BUTANOL (SKIN) 71-36-3	TWA: 20 ppm	Skin Ceiling: 50 ppm Ceiling: 150 mg/m ³ TWA: 100 ppm TWA: 300 mg/m ³	1400 ppm
AMORPHOUS SILICA 7631-86-9	-	TWA: 6 mg/m ³	3000 mg/m ³
BENZENE, 1,3-DIMETHYL 108-38-3	TWA: 100 ppm STEL: 150 ppm	-	900 ppm

Appropriate engineering controls**Engineering measures**

Sufficient ventilation, in volume and pattern, should be provided through both local and general exhaust to keep the air contaminant concentration below current applicable OSHA Permissible Exposure Limits (PEL) and ACGIH's Threshold Limit Values (TLV). Appropriate ventilation should be employed to remove hazardous decomposition products formed during welding or flame cutting operations of surfaces coated with this product.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Use chemical resistant splash type goggles. If splashes are likely to occur, wear face-shield.

Skin and body protection

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection

Use only with adequate ventilation. Do not breathe vapors, spray mist, or dust. Ensure fresh air entry during application and drying. If you experience eye watering, headache or dizziness or if air monitoring demonstrates vapor/mist or dust levels are above applicable limits, wear an appropriate, properly fitted respirator (NIOSH/MSHA approved) during and after application. Follow respirator manufacturer's directions for respirator use.

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice. Avoid breathing dust created by cutting, sanding, or grinding.

9. PHYSICAL AND CHEMICAL PROPERTIES**Information on basic physical and chemical properties**

Physical state	liquid	Odor	aromatic
Appearance	opaque	Odor threshold	No information available
Color	No information available		
Property	Values	Remarks	
pH		No data available	
Melting point / freezing point		Literary Reference	
Boiling point / boiling range	116 °C / 241.0 °F		
Flash point	27 °C / 80.0 °F	Pensky Martens - Closed Cup	
Evaporation rate		No data available	
Flammability (solid, gas)		No information available	
Flammability Limit in Air		No data available	
Upper flammability limit	N/A		

Lower flammability limit	1.0%	
Vapor pressure		No data available
Vapor density		No data available
Specific gravity	1.75931	g/cm3
Water solubility	Insoluble in cold water	
Solubility in other solvents		No data available
Partition coefficient: n-octanol/water		No data available
Autoignition temperature		No data available
Decomposition temperature		No data available
Kinematic viscosity		No data available
Dynamic viscosity	1150 centipoises	approx

Other Information

Density	14.64009 lbs/gal
Volatile organic compounds (VOC) content	2.957 lbs/gal
Total volatiles weight percent	20.2010 %
Total volatiles volume percent	41.1452 %

10. STABILITY AND REACTIVITY**Reactivity**

No data available

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

None under normal processing.

Conditions to avoid

Heat, flames and sparks. Epoxy constituents.

Incompatible materials

Strong oxidizing agents, Water, alcohols, amines, strong bases, metal components, surface active materials, Bases

Hazardous decomposition products

Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. Carbon oxides. Nitrogen oxides (NOx). Hydrocarbons. Aldehydes.

11. TOXICOLOGICAL INFORMATION**Information on Likely Routes of Exposure**

Inhalation	May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination.
Eye contact	Causes serious eye irritation.
Skin contact	Irritating to skin. May cause sensitization by skin contact.
Ingestion	Harmful if swallowed. Potential for aspiration if swallowed. Aspiration may cause pulmonary edema and pneumonitis.

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
TITANIUM DIOXIDE (TOTAL DUST) 13463-67-7	> 10000 mg/kg (Rat)		
XYLENE 1330-20-7	= 3500 mg/kg (Rat)	> 1700 mg/kg (Rabbit) > 4350 mg/kg (Rabbit)	= 5000 ppm (Rat) 4 h = 29.08 mg/L (Rat) 4 h

ETHYL BENZENE 100-41-4	= 3500 mg/kg (Rat)	= 15400 mg/kg (Rabbit)	= 17.2 mg/L (Rat) 4 h
N-BUTANOL (SKIN) 71-36-3	= 700 mg/kg (Rat) = 790 mg/kg (Rat)	= 3402 mg/kg (Rabbit) = 3400 mg/kg (Rabbit)	> 8000 ppm (Rat) 4 h
MODIFIED ALIPHATIC AMINE 90-72-2	= 1200 mg/kg (Rat)	= 1280 mg/kg (Rat)	
AROMATIC HYDROCARBON MIXTURE 64742-95-6	= 8400 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	= 3400 ppm (Rat) 4 h
1,2,4-TRIMETHYLBENZENE 95-63-6	= 3280 mg/kg (Rat)	> 3160 mg/kg (Rabbit)	= 18 g/m ³ (Rat) 4 h
AMORPHOUS SILICA 7631-86-9	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 2.2 mg/L (Rat) 1 h
TRIETHYLENE TETRAMINE 112-24-3	= 2500 mg/kg (Rat)	= 550 mg/kg (Rabbit)	
BENZENE, 1,3-DIMETHYL 108-38-3	= 5 g/kg (Rat)	= 14100 µL/kg (Rabbit)	

Information on toxicological effects**Symptoms**

Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
Skin disorders.

Delayed and immediate effects as well as chronic effects from short and long-term exposure**Sensitization**

May cause sensitization of susceptible persons.

Mutagenicity

May cause genetic defects.

Carcinogenicity

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	ACGIH	IARC	NTP	OSHA
TALC (RESPIRABLE DUST) 14807-96-6		Group 3		
TITANIUM DIOXIDE (TOTAL DUST) 13463-67-7		Group 2B		X
XYLENE 1330-20-7		Group 3		
ETHYL BENZENE 100-41-4	A3	Group 2B		X
AMORPHOUS SILICA 7631-86-9		Group 3		
BENZENE, 1,3-DIMETHYL 108-38-3		Group 3		

Reproductive effects

Suspected of damaging fertility or the unborn child.

STOT - single exposure

No information available

STOT - repeated exposure**Target organ effects**

Causes damage to organs through prolonged or repeated exposure
blood, Central nervous system, Central Vascular System (CVS), Eyes, Lungs, respiratory system, Skin, Gastrointestinal tract, kidney, liver.

Aspiration hazard

Risk of serious damage to the lungs (by aspiration).

Acute Toxicity

11.1697367 % of the mixture consists of ingredient(s) of unknown toxicity.

The following values are calculated based on chapter 3.1 of the GHS document .

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Harmful to aquatic life with long lasting effects

13.08385 % of the mixture consists of component(s) of unknown hazards to the aquatic environment

Component	Toxicity to algae	Toxicity to fish	Toxicity to daphnia
TALC (RESPIRABLE DUST) 14807-96-6		100: 96 h Brachydanio rerio g/L LC50 semi-static	

XYLENE 1330-20-7		LC50= 13.4 mg/L Pimephales promelas 96 h LC50 2.661 - 4.093 mg/L Oncorhynchus mykiss 96 h LC50 13.5 - 17.3 mg/L Oncorhynchus mykiss 96 h LC50 13.1 - 16.5 mg/L Lepomis macrochirus 96 h LC50= 19 mg/L Lepomis macrochirus 96 h LC50 7.711 - 9.591 mg/L Lepomis macrochirus 96 h LC50 23.53 - 29.97 mg/L Pimephales promelas 96 h LC50= 780 mg/L Cyprinus carpio 96 h LC50> 780 mg/L Cyprinus carpio 96 h LC50 30.26 - 40.75 mg/L Poecilia reticulata 96 h	EC50 = 3.82 mg/L 48 h LC50 = 0.6 mg/L 48 h
ETHYL BENZENE 100-41-4	4.6: 72 h Pseudokirchneriella subcapitata mg/L EC50 438: 96 h Pseudokirchneriella subcapitata mg/L EC50 2.6 - 11.3: 72 h Pseudokirchneriella subcapitata mg/L EC50 static 1.7 - 7.6: 96 h Pseudokirchneriella subcapitata mg/L EC50 static	11.0 - 18.0: 96 h Oncorhynchus mykiss mg/L LC50 static 4.2: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 7.55 - 11: 96 h Pimephales promelas mg/L LC50 flow-through 32: 96 h Lepomis macrochirus mg/L LC50 static 9.1 - 15.6: 96 h Pimephales promelas mg/L LC50 static 9.6: 96 h Poecilia reticulata mg/L LC50 static	1.8 - 2.4: 48 h Daphnia magna mg/L EC50
N-BUTANOL (SKIN) 71-36-3	500: 96 h Desmodesmus subspicatus mg/L EC50 500: 72 h Desmodesmus subspicatus mg/L EC50	1730 - 1910: 96 h Pimephales promelas mg/L LC50 static 1740: 96 h Pimephales promelas mg/L LC50 flow-through 100000 - 500000: 96 h Lepomis macrochirus µg/L LC50 static 1910000: 96 h Pimephales promelas µg/L LC50 static	1983: 48 h Daphnia magna mg/L EC50 1897 - 2072: 48 h Daphnia magna mg/L EC50 Static
AROMATIC HYDROCARBON MIXTURE 64742-95-6		9.22: 96 h Oncorhynchus mykiss mg/L LC50	6.14: 48 h Daphnia magna mg/L EC50
1,2,4-TRIMETHYLBENZENE 95-63-6		7.19 - 8.28: 96 h Pimephales promelas mg/L LC50 flow-through	6.14: 48 h Daphnia magna mg/L EC50
AMORPHOUS SILICA 7631-86-9	440: 72 h Pseudokirchneriella subcapitata mg/L EC50	5000: 96 h Brachydanio rerio mg/L LC50 static	7600: 48 h Ceriodaphnia dubia mg/L EC50
TRIETHYLENE TETRAMINE 112-24-3	2.5: 72 h Desmodesmus subspicatus mg/L EC50 20: 72 h Pseudokirchneriella subcapitata mg/L EC50 3.7: 96 h Pseudokirchneriella subcapitata mg/L EC50	570: 96 h Poecilia reticulata mg/L LC50 semi-static 495: 96 h Pimephales promelas mg/L LC50	31.1: 48 h Daphnia magna mg/L EC50
BENZENE, 1,3-DIMETHYL 108-38-3	4.9: 72 h Pseudokirchneriella subcapitata mg/L EC50 static	14.3 - 18: 96 h Pimephales promelas mg/L LC50 flow-through 8.4: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 12.9: 96 h Poecilia reticulata mg/L LC50 semi-static	2.81 - 5.0: 48 h Daphnia magna mg/L EC50 Static

Persistence and degradability

No information available.

Bioaccumulation

No information available.

Mobility in Environmental Media

Component	log Pow
XYLENE 1330-20-7	2.77
ETHYL BENZENE 100-41-4	3.118
N-BUTANOL (SKIN) 71-36-3	0.785

MODIFIED ALIPHATIC AMINE 90-72-2	0.219
1,2,4-TRIMETHYLBENZENE 95-63-6	3.63
TRIETHYLENE TETRAMINE 112-24-3	-1.4
BENZENE, 1,3-DIMETHYL 108-38-3	3.2

Other Adverse Effects

No information available

13. DISPOSAL CONSIDERATIONS**Waste treatment methods****Disposal Methods**

Keep container tightly closed. If spilled, contain spilled material and remove with inert absorbent. Dispose of contaminated absorbent, container and unused contents in accordance with local, state and federal regulations.

Contaminated packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal.

Component	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
XYLENE 1330-20-7		Included in waste stream: F039		U239
ETHYL BENZENE 100-41-4		Included in waste stream: F039		
N-BUTANOL (SKIN) 71-36-3		Included in waste stream: F039		U031

Component	CAWAST
XYLENE 1330-20-7	Toxic Ignitable
ETHYL BENZENE 100-41-4	Toxic Ignitable
N-BUTANOL (SKIN) 71-36-3	Toxic

14. TRANSPORT INFORMATION**DOT**

UN/ID no. 1263
 Proper Shipping Name paint
 Hazard Class 3
 Packing Group III
 Emergency Response Guide Number 128

IATA

UN/ID no. 1263
 Proper Shipping Name paint
 Hazard Class 3
 Packing Group III
 ERG Code 366

Additional information

Call TNEMEC Traffic Department - 816-474-3400 for additional information or other modes of Transportation.

15. REGULATORY INFORMATION**International Inventories**

TSCA	Complies
DSL/NDL	Complies
EINECS/ELINCS	Does not comply
ENCS	Does not comply
IECSC	Complies
KECL	Does not comply
PICCS	Does not comply
AICS	Does not comply

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

Component

HAPS Data

XYLENE

ETHYL BENZENE

BENZENE, 1,3-DIMETHYL

United States of America

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and and Title 40n of the Code of Federal Regulations, Part 372:

Component	SARA 313 - Threshold Values
BARIUM SULFATE (TOTAL DUST) - 7727-43-7	1.0
XYLENE - 1330-20-7	1.0
ETHYL BENZENE - 100-41-4	0.1
N-BUTANOL (SKIN) - 71-36-3	1.0
1,2,4-TRIMETHYLBENZENE - 95-63-6	1.0
BENZENE, 1,3-DIMETHYL - 108-38-3	1.0

SARA 311/312 Hazardous

Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Component	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
XYLENE 1330-20-7	100 lb			X
ETHYL BENZENE 100-41-4	1000 lb	X	X	X
BENZENE, 1,3-DIMETHYL 108-38-3				X

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs	RQ
XYLENE 1330-20-7	100 lb		RQ 100 lb final RQ RQ 45.4 kg final RQ
ETHYL BENZENE 100-41-4	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ
N-BUTANOL (SKIN) 71-36-3	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ

BENZENE, 1,3-DIMETHYL 108-38-3	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ
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United States of America**California Prop. 65**

WARNING! This product contains a chemical known in the State of California to cause cancer

Component	California Prop. 65
TITANIUM DIOXIDE (TOTAL DUST) - 13463-67-7	Carcinogen
ETHYL BENZENE - 100-41-4	Carcinogen

California SCAQMD Rule 443

Contains Photochemically Reactive Solvent

State Right-to-Know

Component	New Jersey	Massachusetts	Pennsylvania
TALC (RESPIRABLE DUST) 14807-96-6	X	X	X
BARIUM SULFATE (TOTAL DUST) 7727-43-7	X	X	X
TITANIUM DIOXIDE (TOTAL DUST) 13463-67-7	X	X	X
XYLENE 1330-20-7	X	X	X
ETHYL BENZENE 100-41-4	X	X	X
N-BUTANOL (SKIN) 71-36-3	X	X	X
1,2,4-TRIMETHYLBENZENE 95-63-6	X	X	X
AMORPHOUS SILICA 7631-86-9	X	X	X
TRIETHYLENE TETRAMINE 112-24-3	X	X	X
BENZENE, 1,3-DIMETHYL 108-38-3	X	X	X
DIETHYLBENZENE 25340-17-4	X		

16. OTHER INFORMATION**NFPA**

Health 3

Flammability 3

Instability 1

Physical hazard *

HMIS (Hazardous

Health 3*

Flammability 3

Reactivity 1

Material Information**System)**

Prepared By

Tnemec Regulatory Dept: 816-474-3400

Revision Date

28-Sep-2015

Revision Summary

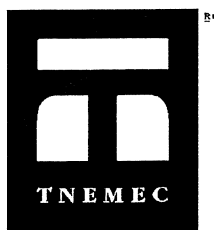
4 5 7 10 8 9 11 14

Disclaimer

For specific information regarding occupational safety and health standards, please refer to the Code of Federal Regulations, Title 29, Part 1910.

To the best of our knowledge, the information contained herein is accurate. However, neither the Tnemec Company or any of its subsidiaries assume any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist.

End of SDS



Safety Data Sheet

Issue Date No data available

Revision Date 05-Mar-2015

Revision Number 13

1. IDENTIFICATION

Product identifier

Product Code F027-0027B
Product Name F. C. TYPOXY CONVERTER

Other means of identification

Common Name SERIES 27 PART B
UN/ID no. 1263

Recommended use of the chemical and restrictions on use

Recommended Use industrial paint.
Uses advised against Consumer use, For professional use only. Not for residential use.

Details of the supplier of the safety data sheet

Manufacturer Address
Tnemec Company, Inc. 6800 Corporate Drive, Kansas City, MO 64120-1372

Emergency telephone number

Company Phone Number Tnemec Regulatory Dept: 816-474-3400
24 Hour Emergency Phone Number 800-535-5053 (Infotrac)

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Serious eye damage/eye irritation	Category 2
Skin sensitization	Category 1
Carcinogenicity	Category 2
Reproductive Toxicity	Category 1B
Specific target organ toxicity (repeated exposure)	Category 2
Flammable Liquids	Category 3

Label elements

EMERGENCY OVERVIEW

Danger

Hazard statements

Causes serious eye irritation
May cause an allergic skin reaction
Suspected of causing cancer
May damage fertility or the unborn child
May cause damage to organs through prolonged or repeated exposure
Flammable liquid and vapor

**Appearance** opaque**Physical state** liquid**Odor** aromatic**Precautionary Statements****Prevention**

Obtain special instructions before use
 Do not handle until all safety precautions have been read and understood
 Use personal protective equipment as required
 Contaminated work clothing should not be allowed out of the workplace
 Wear protective gloves
 Do not breathe dust/fume/gas/mist/vapors/spray
 Keep away from heat/sparks/open flames/hot surfaces. – No smoking
 Keep container tightly closed
 Ground/bond container and receiving equipment
 Use explosion-proof electrical/ventilating/lighting/mixing/equipment
 Use only non-sparking tools
 Take precautionary measures against static discharge

Response

IF exposed or concerned: Get medical advice/attention
 If skin irritation or rash occurs: Get medical advice/attention
 Wash contaminated clothing before reuse
 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
 In case of fire: Use CO₂, dry chemical, or foam for extinction

Storage

Store locked up
 Store in a well-ventilated place. Keep cool
 Keep away from children

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)**Other information**

May be harmful if swallowed
 May be harmful in contact with skin
 Causes mild skin irritation
 Toxic to aquatic life with long lasting effects
 Acute Toxicity 0.89682 % of the mixture consists of ingredient(s) of unknown toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No	Weight-%
TALC (RESPIRABLE DUST)	14807-96-6	10 - 30%
P-CHLOROBENZOTRIFLUORIDE	98-56-6	10 - 30%
BARIUM SULFATE (TOTAL DUST)	7727-43-7	10 - 30%
SOLID EPOXY RESIN	-	10 - 30%
EPOXY RESIN (LER)	25085-99-8	1 - 10%
XYLENE	1330-20-7	1 - 10%

ETHYL BENZENE	100-41-4	1 - 10%
N-BUTANOL (SKIN)	71-36-3	1 - 10%
BENZENE, 1,4-DIMETHYL	106-42-3	0.1 - 1%
BENZENE, 1,3-DIMETHYL	108-38-3	0.1 - 1%

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures

General advice	Show this safety data sheet to the doctor in attendance.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If symptoms persist, call a physician.
Inhalation	Remove to fresh air. Oxygen or artificial respiration if needed.
Ingestion	If swallowed, do not induce vomiting. Get medical attention immediately.
Self-protection of the first aider	Use personal protective equipment. Avoid contact with eyes, skin and clothing.

Most important symptoms and effects, both acute and delayed

Notes to physician	Treat symptomatically.
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5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Carbon dioxide (CO₂). Foam. Dry chemical.

Unsuitable extinguishing media Water.

Specific hazards arising from the chemical

Thermal decomposition can lead to release of irritating gases and vapours In the event of fire and/or explosion do not breathe fumes

Hazardous combustion products Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. Carbon oxides. Hydrocarbons. Aldehydes. Hydrogen chloride. Hydrogen fluoride. Organic halides. Chlorine. Fluorine.

Protective equipment and precautions for firefighters

Use water spray to cool unopened containers. In the event of fire, wear self-contained breathing apparatus. Keep away from heat/sparks/open flames/hot surfaces. MAY CAUSE HEAT AND PRESSURE BUILD-UP IN CLOSED CONTAINERS. Solvent vapors are heavier than air and may spread along floors. Flash back possible over considerable distance.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions	Avoid contact with eyes, skin and clothing. Use personal protective equipment. Remove all sources of ignition.
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Environmental Precautions

Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system.
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Methods and material for containment and cleaning up

Methods for containment Remove all sources of ignition. Spills may be collected with inert, absorbent material for proper disposal. Use non-sparking tools, protective gloves, goggles and clothing, adequate ventilation, avoid the breathing of vapors and use respiratory protective devices. Transfer absorbent material to suitable containers for proper disposal.

Methods for cleaning up If spilled, contain spilled material and remove with inert absorbent. Dispose of contaminated absorbent, container and unused contents in accordance with local, state and federal regulations.

7. HANDLING AND STORAGE**Precautions for safe handling**

Handling Close container after each use. Avoid contact with eyes, skin and clothing. Do not eat, drink or smoke when using this product. If splashes are likely to occur, wear goggles. Wear protective gloves/clothing. Do not burn, or use a cutting torch on, the empty drum. When used in a mixture, read the labels and safety data sheets of all components. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Storage Keep away from heat, sparks and flame. Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children.

Incompatible products Strong oxidizing agents. Acids. Amines. Bases.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Control parameters****Exposure guidelines**

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
TALC (RESPIRABLE DUST) 14807-96-6	TWA: 2 mg/m ³	TWA: 2 mg/m ³	1000 mg/m ³
P-CHLOROBENZOTRIFLUORIDE 98-56-6	TWA: 2.5 mg/m ³	-	
BARIUM SULFATE (TOTAL DUST) 7727-43-7	TWA: 5 mg/m ³	TWA: 10 mg/m ³ TWA: 5 mg/m ³ TWA: 15 mg/m ³	
XYLENE 1330-20-7	TWA: 100 ppm STEL: 150 ppm	TWA: 100 ppm TWA: 435 mg/m ³ STEL: 150 ppm STEL: 655 mg/m ³	
ETHYL BENZENE 100-41-4	TWA: 20 ppm	TWA: 100 ppm TWA: 435 mg/m ³ STEL: 125 ppm STEL: 545 mg/m ³	800 ppm
N-BUTANOL (SKIN) 71-36-3	TWA: 20 ppm	Skin Ceiling: 50 ppm Ceiling: 150 mg/m ³ TWA: 100 ppm TWA: 300 mg/m ³	1400 ppm
BENZENE, 1,4-DIMETHYL 106-42-3	TWA: 100 ppm STEL: 150 ppm	-	900 ppm
BENZENE, 1,3-DIMETHYL 108-38-3	TWA: 100 ppm STEL: 150 ppm	-	900 ppm

NIOSH IDLH: Immediately Dangerous to Life or Health

Appropriate engineering controls

Engineering measures Sufficient ventilation, in volume and pattern, should be provided through both local and general exhaust to keep the air contaminant concentration below current applicable OSHA Permissible Exposure Limits (PEL) and ACGIH's Threshold Limit Values (TLV). Appropriate ventilation should be employed to remove hazardous decomposition products formed during welding or flame cutting operations of surfaces coated with this product.

Individual protection measures, such as personal protective equipment

Eye/face protection Use chemical resistant splash type goggles. If splashes are likely to occur, wear face-shield.

Skin and body protection Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection Use only with adequate ventilation. Do not breathe vapors, spray mist, or dust. Ensure fresh air entry during application and drying. If you experience eye watering, headache or dizziness or if air monitoring demonstrates vapor/mist or dust levels are above applicable limits, wear an appropriate, properly fitted respirator (NIOSH/MSHA approved) during and after application. Follow respirator manufacturer's directions for respirator use.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice. Avoid breathing dust created by cutting, sanding, or grinding.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	liquid	Odor	aromatic
Appearance	opaque	Odor threshold	No information available
Color	No information available		

<u>Property</u>	<u>Values</u>	<u>Remarks</u>
pH		No data available
Melting point / freezing point		No data available
Boiling point / boiling range	116 °C / 241.0 °F	
Flash point	27 °C / 80.0 °F	
Evaporation rate		Pensky Martens - Closed Cup
Flammability (solid, gas)		No data available
Flammability Limit in Air		No information available
Upper flammability limit	N/A	No data available
Lower flammability limit	1.0	
Vapor pressure		No data available
Vapor density		No data available
Specific gravity	1.64769	g/cm3
Water solubility	Insoluble in cold water	
Solubility in other solvents		No data available
Partition coefficient: n-octanol/water		No data available
Autoignition temperature		No data available
Decomposition temperature		No data available
Kinematic viscosity		No data available
Dynamic viscosity	1100 centipoises	

Other Information

Density	13.71128 lbs/gal
Volatile organic compounds (VOC) content	1.680 lbs/gal
Total volatiles weight percent	28.9700 %
Total volatiles volume percent	41.9734 %

10. STABILITY AND REACTIVITY

Reactivity

No data available

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

None under normal processing.

Conditions to avoid

Heat, flames and sparks. Amines.

Incompatible materials

Strong oxidizing agents, Acids, Amines, Bases

Hazardous decomposition products

Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. Carbon oxides. Hydrocarbons. Aldehydes. Hydrogen chloride. Hydrogen Fluoride. Organic Halides. Chlorine. Fluorine.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation	May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination.
Eye contact	Severely irritating to eyes.
Skin contact	Irritating to skin. May cause sensitization by skin contact.
Ingestion	Harmful if swallowed.

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
P-CHLOROBENZOTRIFLUORIDE 98-56-6	= 13 g/kg (Rat)	> 2 mL/kg (Rabbit)	= 33 mg/L (Rat) 4 h
XYLENE 1330-20-7	= 3500 mg/kg (Rat)	> 1700 mg/kg (Rabbit) > 4350 mg/kg (Rabbit)	= 29.08 mg/L (Rat) 4 h = 5000 ppm (Rat) 4 h
ETHYL BENZENE 100-41-4	= 3500 mg/kg (Rat)	= 15400 mg/kg (Rabbit)	= 17.2 mg/L (Rat) 4 h
N-BUTANOL (SKIN) 71-36-3	= 700 mg/kg (Rat) = 790 mg/kg (Rat)	= 3402 mg/kg (Rabbit) = 3400 mg/kg (Rabbit)	> 8000 ppm (Rat) 4 h
BENZENE, 1,4-DIMETHYL 106-42-3	= 4029 mg/kg (Rat)		= 4740 ppm (Rat) 4 h = 4550 ppm (Rat) 4 h
BENZENE, 1,3-DIMETHYL 108-38-3	= 5000 mg/kg (Rat)	= 14100 µL/kg (Rabbit)	

Information on toxicological effects

Symptoms	Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Skin disorders.
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Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization	May cause sensitization of susceptible persons.
Mutagenicity	No information available.
Carcinogenicity	The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	ACGIH	IARC	NTP	OSHA
TALC (RESPIRABLE DUST) 14807-96-6		Group 3		

XYLENE 1330-20-7		Group 3		
ETHYL BENZENE 100-41-4	A3	Group 2B		X
BENZENE, 1,4-DIMETHYL 106-42-3		Group 3		
BENZENE, 1,3-DIMETHYL 108-38-3		Group 3		

Reproductive effects
STOT - single exposure
STOT - repeated exposure
Target organ effects

May damage fertility or the unborn child.
 No information available
 Causes damage to organs through prolonged or repeated exposure
 Central Vascular System (CVS), Eyes, respiratory system, Skin, Central nervous system, blood, Gastrointestinal tract, kidney, liver.
 No information available.

Aspiration hazard

Acute Toxicity

0.89682 % of the mixture consists of ingredient(s) of unknown toxicity.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Toxic to aquatic life with long lasting effects

17.247472 % of the mixture consists of components(s) of unknown hazards to the aquatic environment

Component	Toxicity to algae	Toxicity to fish	Toxicity to daphnia
TALC (RESPIRABLE DUST) 14807-96-6		100: 96 h Brachydanio rerio g/L LC50 semi-static	
P-CHLOROBENZOTRIFLUORIDE 98-56-6		11.5 - 15.8: 48 h Lepomis macrochirus mg/L LC50 static	3.68: 48 h Daphnia magna mg/L EC50
EPOXY RESIN (LER) 25085-99-8	11 mg/L 72 hr	2 mg/L 96 hr Oncorhynchus mykiss	1.8 mg/L 48h
XYLENE 1330-20-7		LC50= 13.4 mg/L Pimephales promelas 96 h LC50 2.661 - 4.093 mg/L Oncorhynchus mykiss 96 h LC50 13.5 - 17.3 mg/L Oncorhynchus mykiss 96 h LC50 13.1 - 16.5 mg/L Lepomis macrochirus 96 h LC50= 19 mg/L Lepomis macrochirus 96 h LC50 7.711 - 9.591 mg/L Lepomis macrochirus 96 h LC50 23.53 - 29.97 mg/L Pimephales promelas 96 h LC50= 780 mg/L Cyprinus carpio 96 h LC50> 780 mg/L Cyprinus carpio 96 h LC50 30.26 - 40.75 mg/L Poecilia reticulata 96 h	EC50 = 3.82 mg/L 48 h LC50 = 0.6 mg/L 48 h
ETHYL BENZENE 100-41-4	4.6: 72 h Pseudokirchneriella subcapitata mg/L EC50 438: 96 h Pseudokirchneriella subcapitata mg/L EC50 2.6 - 11.3: 72 h Pseudokirchneriella subcapitata mg/L EC50 static 1.7 - 7.6: 96 h Pseudokirchneriella subcapitata mg/L EC50 static	11.0 - 18.0: 96 h Oncorhynchus mykiss mg/L LC50 static 32: 96 h Lepomis macrochirus mg/L LC50 static 4.2: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 7.55 - 11: 96 h Pimephales promelas mg/L LC50 flow-through 9.6: 96 h Poecilia reticulata mg/L LC50 static 9.1 - 15.6: 96 h Pimephales promelas mg/L LC50 static	1.8 - 2.4: 48 h Daphnia magna mg/L EC50
N-BUTANOL (SKIN) 71-36-3	500: 96 h Desmodesmus subspicatus mg/L EC50 500: 72 h Desmodesmus subspicatus mg/L EC50	1740: 96 h Pimephales promelas mg/L LC50 flow-through 1910000: 96 h Pimephales promelas µg/L LC50 static 100000 - 500000: 96 h Lepomis macrochirus µg/L LC50 static 1730 - 1910: 96 h Pimephales promelas mg/L LC50 static	1897 - 2072: 48 h Daphnia magna mg/L EC50 Static 1983: 48 h Daphnia magna mg/L EC50

BENZENE, 1,4-DIMETHYL 106-42-3	3.2: 72 h Pseudokirchneriella subcapitata mg/L EC50 static 105.1: 3 h Chlorella vulgaris mg/L EC50	2.6: 96 h Oncorhynchus mykiss mg/L LC50 8.8: 96 h Poecilia reticulata mg/L LC50 semi-static 7.2 - 9.9: 96 h Pimephales promelas mg/L LC50 static 2.6: 96 h Oncorhynchus mykiss mg/L LC50 static	3.55 - 6.31: 48 h Daphnia magna mg/L EC50 Static
BENZENE, 1,3-DIMETHYL 108-38-3	4.9: 72 h Pseudokirchneriella subcapitata mg/L EC50 static	8.4: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 14.3 - 18: 96 h Pimephales promelas mg/L LC50 flow-through 12.9: 96 h Poecilia reticulata mg/L LC50 semi-static	2.81 - 5.0: 48 h Daphnia magna mg/L EC50 Static

Persistence and degradability

No information available.

Bioaccumulation

No information available.

Mobility in Environmental Media

Component	log Pow
P-CHLOROBENZOTRIFLUORIDE 98-56-6	3.7
XYLENE 1330-20-7	2.77
ETHYL BENZENE 100-41-4	3.118
N-BUTANOL (SKIN) 71-36-3	0.785
BENZENE, 1,4-DIMETHYL 106-42-3	3.15
BENZENE, 1,3-DIMETHYL 108-38-3	3.2

Other Adverse Effects

No information available

13. DISPOSAL CONSIDERATIONS**Waste treatment methods****Disposal Methods**

Keep container tightly closed. If spilled, contain spilled material and remove with inert absorbent. Dispose of contaminated absorbent, container and unused contents in accordance with local, state and federal regulations.

Contaminated packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal.

Component	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
XYLENE 1330-20-7		Included in waste stream: F039		U239
ETHYL BENZENE 100-41-4		Included in waste stream: F039		
N-BUTANOL (SKIN) 71-36-3		Included in waste stream: F039		U031

California Hazardous Waste Status

This product contains one or more substances that are listed with the State of California as a hazardous waste

Component	CAWAST
BARIUM SULFATE (TOTAL DUST) 7727-43-7	Toxic

XYLENE 1330-20-7	Toxic Ignitable
ETHYL BENZENE 100-41-4	Toxic Ignitable
N-BUTANOL (SKIN) 71-36-3	Toxic

14. TRANSPORT INFORMATION

DOT

UN/ID no. 1263
 Proper Shipping Name paint
 Hazard Class 3
 Packing Group III
 Emergency Response Guide Number 128

IATA

UN/ID no. 1263
 Proper Shipping Name paint
 Hazard Class 3
 Packing Group III
 ERG Code 366

Additional information

Call TNEMEC Traffic Department - 816-474-3400 for additional information or other modes of Transportation.

15. REGULATORY INFORMATION

International Inventories

TSCA Complies
 DSL/NDL Complies
 EINECS/ELINCS Does not comply
 ENCS Complies
 IECSC Complies
 KECL Complies
 PICCS Complies
 AICS Does not comply

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

Component HAPS Data

XYLENE
 ETHYL BENZENE
 BENZENE, 1,4-DIMETHYL
 BENZENE, 1,3-DIMETHYL

United States of America

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Component	SARA 313 - Threshold Values
BARIUM SULFATE (TOTAL DUST) - 7727-43-7	1.0
XYLENE - 1330-20-7	1.0
ETHYL BENZENE - 100-41-4	0.1
N-BUTANOL (SKIN) - 71-36-3	1.0
BENZENE, 1,4-DIMETHYL - 106-42-3	1.0
BENZENE, 1,3-DIMETHYL - 108-38-3	1.0

SARA 311/312 Hazardous**Categorization**

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Component	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
XYLENE 1330-20-7	100 lb			X
ETHYL BENZENE 100-41-4	1000 lb	X	X	X
BENZENE, 1,4-DIMETHYL 106-42-3				X
BENZENE, 1,3-DIMETHYL 108-38-3				X

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs	RQ
XYLENE 1330-20-7	100 lb		RQ 100 lb final RQ RQ 45.4 kg final RQ
ETHYL BENZENE 100-41-4	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ
N-BUTANOL (SKIN) 71-36-3	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ
BENZENE, 1,4-DIMETHYL 106-42-3	100 lb		RQ 100 lb final RQ RQ 45.4 kg final RQ
BENZENE, 1,3-DIMETHYL 108-38-3	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ

United States of America**California Prop. 65**

WARNING! This product contains a chemical known in the State of California to cause cancer

Component	California Prop. 65
ETHYL BENZENE - 100-41-4	Carcinogen

California SCAQMD Rule 443

Contains Photochemically Reactive Solvent

State Right-to-Know

Component	New Jersey	Massachusetts	Pennsylvania
TALC (RESPIRABLE DUST) 14807-96-6	X	X	X
P-CHLOROBENZOTRIFLUORIDE 98-56-6	X		X
BARIUM SULFATE (TOTAL DUST) 7727-43-7	X	X	X
XYLENE 1330-20-7	X	X	X
ETHYL BENZENE 100-41-4	X	X	X

N-BUTANOL (SKIN) 71-36-3	X	X	X
BENZENE, 1,4-DIMETHYL 106-42-3	X	X	X
BENZENE, 1,3-DIMETHYL 108-38-3	X	X	X

16. OTHER INFORMATION

NFPA
HMIS (Hazardous
Material Information
System)

Health 2
Health 2*

Flammability 3
Flammability 3

Instability 1
Reactivity 1

Physical hazard *

Prepared By
Revision Date
Revision Summary
9 4 5 7 10 8 11 14

Tnemec Regulatory Dept: 816-474-3400
05-Mar-2015

Disclaimer

For specific information regarding occupational safety and health standards, please refer to the Code of Federal Regulations, Title 29, Part 1910.

To the best of our knowledge, the information contained herein is accurate. However, neither the Tnemec Company or any of its subsidiaries assume any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist.

End of MSDS



ENDURA-SHIELD®

PRODUCT DATA SHEET

SERIES 73

PRODUCT PROFILE

GENERIC DESCRIPTION	Aliphatic Acrylic Polyurethane
COMMON USAGE	A coating highly resistant to abrasion, wet conditions, corrosive fumes, chemical contact and exterior weathering. Direct-to-Metal capability allows for a labor-saving, high-build, single coat application. NOT FOR IMMERSION SERVICE.
COLORS	Refer to Tnemec Color Guide. Note: Certain colors may require multiple coats depending on method of application and finish coat color. When feasible, the preceding coat should be in the same color family (blue, gray, etc.), but noticeably different.
FINISH	Semi-gloss
SPECIAL QUALIFICATIONS	Series 73 meets the accelerated weathering requirements of SSPC Paint Standard 36.
PERFORMANCE CRITERIA	Extensive test data available. Contact your Tnemec representative for specific test results.

COATING SYSTEM

PRIMERS	Steel: Self-priming or Series 1, 20, FC20, 27, 37H, 66, L69, L69F, N69, N69F, V69, V69F, 90-97, H90-97, 90G-1K97, 91-H ₂ O, H91-H ₂ O, 94-H ₂ O, 135, L140, L140F, N140, N140F, V140, V140F, 141, 161, 394, 530 Galvanized Steel & Non-Ferrous Metal: Series 66, L69, L69F, N69, N69F, V69, V69F, 161 Concrete: Series 66, L69, L69F, N69, N69F, V69, V69F, 141, 161, 1254 CMU: Series 1254 Note: Series 530 exterior exposed more than 24 hours, Series L69, N69, V69, 135, L140, N140, or V140 exterior exposed more than 60 days, Series L69F, N69F, V69F, L140F, N140F or V140F exterior exposed more than 30 days, or Series 141 exterior exposed more than 14 days must first be scarified or reprimed with themselves. Brush blasting with fine abrasive is the preferred method of scarification. Recoat windows for other primers may apply. See those data sheets for additional information.
TOPCOATS	Series 700, 701, 740, 750, 1070, 1070V, 1071, 1071V, 1072, 1072V, 1074, 1074U, 1075, 1075U, 1077, 1078

SURFACE PREPARATION

STEEL	SSPC-SP6/NACE 3 Commercial Blast Cleaning or ISO Sa 2 Thorough Blast Cleaning with a minimum angular anchor profile of 2.0 mils.
ALL SURFACES	Must be clean, dry and free of oil, grease and other contaminants. See primer product data sheet for surface preparation recommendation.

TECHNICAL DATA

VOLUME SOLIDS	58.0 ± 2.0% (mixed) †																			
RECOMMENDED DFT	Topcoat Service: 2.0 to 5.0 mils (50 to 125 microns) per coat. Direct-to-Metal Service: 3.5 to 5.0 mils (89 to 125 microns). Note: Number of coats and thickness requirements will vary with substrate, application method and exposure. Contact your Tnemec representative.																			
CURING TIME	<table><tr><td>Temperature</td><td>To Touch</td><td>To Handle</td><td colspan="2">To Recoat</td></tr><tr><td>75°F (24°C)</td><td>1 hour</td><td>5-8 hours</td><td colspan="2">12 hours</td></tr></table> Curing time varies with surface temperature, air movement, humidity and film thickness. Note: For faster curing and low-temperature applications, add No. 44-710 Urethane Accelerator; see separate product data sheet.					Temperature	To Touch	To Handle	To Recoat		75°F (24°C)	1 hour	5-8 hours	12 hours						
Temperature	To Touch	To Handle	To Recoat																	
75°F (24°C)	1 hour	5-8 hours	12 hours																	
VOLATILE ORGANIC COMPOUNDS	<table><tr><td>Unthinned</td><td>Thinned 10% (Max) (No. 39 Thinner)</td><td>Thinned 10% (Max) (No. 42 Thinner)</td><td>Thinned 10% (Max) (No. 48 Thinner)</td><td>Thinned 10% (Max) (No. 56 Thinner)</td><td>Thinned 10% (Max) (No. 63 Thinner)</td></tr><tr><td>2.70 lbs/gallon (324 grams/litre)</td><td>3.05 lbs/gallon (366 grams/litre)</td><td>3.10 lbs/gallon (371 grams/litre)</td><td>3.15 lbs/gallon (378 grams/litre)</td><td>2.76 lbs/gallon (331 grams/litre)</td><td>3.07 lbs/gallon (368 grams/litre)</td></tr></table>					Unthinned	Thinned 10% (Max) (No. 39 Thinner)	Thinned 10% (Max) (No. 42 Thinner)	Thinned 10% (Max) (No. 48 Thinner)	Thinned 10% (Max) (No. 56 Thinner)	Thinned 10% (Max) (No. 63 Thinner)	2.70 lbs/gallon (324 grams/litre)	3.05 lbs/gallon (366 grams/litre)	3.10 lbs/gallon (371 grams/litre)	3.15 lbs/gallon (378 grams/litre)	2.76 lbs/gallon (331 grams/litre)	3.07 lbs/gallon (368 grams/litre)			
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HAPS	<table><tr><td>Unthinned</td><td>Thinned 10% (Max) (No. 39 Thinner)</td><td>Thinned 10% (Max) (No. 42 Thinner)</td><td>Thinned 10% (Max) (No. 48 Thinner)</td><td>Thinned 10% (Max) (No. 56 Thinner)</td><td>Thinned 10% (Max) (No. 63 Thinner)</td></tr><tr><td>0.27 lbs/gal solids</td><td>0.27 lbs/gal solids</td><td>0.27 lbs/gal solids</td><td>0.27 lbs/gal solids</td><td>0.27 lbs/gal solids</td><td>0.32 lbs/gal solids</td></tr></table>					Unthinned	Thinned 10% (Max) (No. 39 Thinner)	Thinned 10% (Max) (No. 42 Thinner)	Thinned 10% (Max) (No. 48 Thinner)	Thinned 10% (Max) (No. 56 Thinner)	Thinned 10% (Max) (No. 63 Thinner)	0.27 lbs/gal solids	0.27 lbs/gal solids	0.27 lbs/gal solids	0.27 lbs/gal solids	0.27 lbs/gal solids	0.32 lbs/gal solids			
Unthinned	Thinned 10% (Max) (No. 39 Thinner)	Thinned 10% (Max) (No. 42 Thinner)	Thinned 10% (Max) (No. 48 Thinner)	Thinned 10% (Max) (No. 56 Thinner)	Thinned 10% (Max) (No. 63 Thinner)															
0.27 lbs/gal solids	0.27 lbs/gal solids	0.27 lbs/gal solids	0.27 lbs/gal solids	0.27 lbs/gal solids	0.32 lbs/gal solids															
THEORETICAL COVERAGE	930 mil sq ft/gal (22.8 m²/L at 25 microns). †																			
NUMBER OF COMPONENTS	Two: Part A and Part B																			
MIXING RATIO	By volume: Four (Part A) to one (Part B)																			
PACKAGING	<table><tr><td></td><td>PART A</td><td>PART B</td><td colspan="2">When Mixed</td></tr><tr><td>5 Gallon Kit</td><td>5 gallon pail (partial fill)</td><td>1 gallon can</td><td colspan="2">5 gallons (18.9L)</td></tr><tr><td>1 Gallon Kit</td><td>1 gallon pail (partial fill)</td><td>1 quart can (partial fill)</td><td colspan="2">1 gallon (3.79L)</td></tr></table>						PART A	PART B	When Mixed		5 Gallon Kit	5 gallon pail (partial fill)	1 gallon can	5 gallons (18.9L)		1 Gallon Kit	1 gallon pail (partial fill)	1 quart can (partial fill)	1 gallon (3.79L)	
	PART A	PART B	When Mixed																	
5 Gallon Kit	5 gallon pail (partial fill)	1 gallon can	5 gallons (18.9L)																	
1 Gallon Kit	1 gallon pail (partial fill)	1 quart can (partial fill)	1 gallon (3.79L)																	
NET WEIGHT PER GALLON	12.13 ± 0.25 lbs (5.50 ± .11 kg) †																			
STORAGE TEMPERATURE	Minimum 20°F (-7°C) Maximum 110°F (43°C)																			
TEMPERATURE RESISTANCE	(Dry) Continuous 250°F (121°C) Intermittent 275°F (135°C)																			
SHELF LIFE	Part A: 24 months at recommended storage temperature. Part B: 12 months at recommended storage temperature.																			
FLASH POINT - SETA	Part A: 55°F (13°C) Part B: 112°F (43°C)																			

ENDURA-SHIELD® | SERIES 73

HEALTH & SAFETY

Paint products contain chemical ingredients which are considered hazardous. Read container label warning and Material Safety Data Sheet for important health and safety information prior to the use of this product.
Keep out of the reach of children.

APPLICATION

COVERAGE RATES

Topcoat Service

	Dry Mils (Microns)	Wet Mils (Microns)	Sq Ft/Gal (m ² /Gal)
Suggested	2.5 (65)	4.5 (115)	372 (34.6)
Minimum	2.0 (50)	3.5 (90)	465 (43.2)
Maximum	3.0 (75)	5.0 (155)	310 (28.8)

Direct to Metal Service

	Dry Mils (Microns)	Wet Mils (Microns)	Sq Ft/Gal (m ² /Gal)
Suggested	4.0 (100)	7.0 (180)	233 (21.6)
Minimum	3.5 (90)	6.0 (150)	266 (24.7)
Maximum	5.0 (125)	8.5 (215)	186 (17.3)

(1) Can be spray applied at 3.0 to 5.0 mils (75 to 125 microns) DFT per coat when extra protection or the elimination of a coat is desired.

(2) Can be sprayed, brushed or rolled at 2.0 to 3.0 mils (50 to 75 microns) DFT per coat for use in systems requiring a conventional build topcoat.

Allow for overspray and surface irregularities. Wet film thickness is rounded to the nearest 0.5 mil or 5 microns.

Application of coating below minimum or above maximum recommended dry film thicknesses may adversely affect coating performance. †

MIXING

Stir contents of the container marked Part A, making sure no pigment remains on the bottom. Add the contents of the can marked Part B to Part A while under agitation. Continue agitation until the two components are thoroughly mixed. When used with 44-710 Urethane Accelerator, first blend 44-710 into Part A under agitation; continue as above. Do not use mixed material beyond pot life limits. **Caution: Part B is moisture-sensitive and will react with atmospheric moisture. Keep unused material tightly closed at all times.**

THINNING

For air spray, thin up to 10% or 3/4 pint (380 mL) per gallon by volume with No. 42 Thinner if temperatures are below 80°F (27°C), use No. 48 Thinner for temperatures above 80°F (27°C). Thin up to 5% or 1/4 pint (190 mL) per gallon for airless spray. For brush or roller, thin 5% to 10% or 1/4 to 3/4 pint (190 to 380 mL) per gallon with No. 39 or No. 63 Thinner. Thinning is required for proper brush or roller application. **Note:** A maximum of 10% of No. 56 Thinner may be used to comply with VOC regulations. **Caution: Do not add thinner if more than thirty (30) minutes have elapsed after mixing.**

POT LIFE

8 hours at 40°F (4°C) 4 hours at 77°F (25°C) 2 hours at 100°F (38°C)

APPLICATION EQUIPMENT

Air Spray

Gun	Fluid Tip	Air Cap	Air Hose ID	Mat'l Hose ID	Atomizing Pressure	Pot Pressure
DeVilbiss JGA	E	765 or 704	5/16" or 3/8" (7.9 or 9.5 mm)	3/8" or 1/2" (9.5 or 12.7 mm)	75-90 psi (5.2-6.2 bar)	10-20 psi (0.7-1.4 bar)

Low temperatures or longer hoses require higher pot pressure.

Airless Spray

Tip Orifice	Atomizing Pressure	Mat'l Hose ID	Manifold Filter
0.013"-0.017" (330-430 microns)	2700-3300 psi (186-228 bar)	1/4" or 3/8" (6.4 or 9.5 mm)	60 mesh (250 microns)

Use appropriate tip/atomizing pressure for equipment, applicator technique and weather conditions.

Roller: Use 1/4" to 3/8" (6.4 mm to 9.5 mm) synthetic woven nap roller cover. Do not use long nap roller covers. **Note:** Two coats are required to obtain dry film thickness above 3.0 mils (75 microns).

Brush: Recommended for small areas only. Use high quality natural or synthetic bristle brushes. **Note:** Two or more coats may be required to obtain recommended film thicknesses.

SURFACE TEMPERATURE

Minimum 35°F (2°C) Maximum 120°F (49°C)

The surface should be dry and at least 5°F (3°C) above the dew point.

Cure time necessary to resist direct contact with moisture at surface temperature:

40°F (4°C): 24 to 40 hours 50°F (10°C): 18 to 26 hours 60°F (16°C): 12 to 16 hours

70°F (21°C): 4 to 8 hours 90°F (32°C): 2 to 4 hours 100°F (38°C): 2 to 3 hours

If the coating is exposed to moisture before the preceding cure parameters are met, dull, flat or spotty appearing areas may develop. Actual times will vary with air movement, film thickness and humidity.

CLEANUP

Flush and clean all equipment immediately after use with the recommended thinner or MEK.

† Values may vary with color.

WARRANTY & LIMITATION OF SELLER'S LIABILITY: Tnemec Company, Inc. warrants only that its coatings represented herein meet the formulation standards of Tnemec Company, Inc. THE WARRANTY DESCRIBED IN THE ABOVE PARAGRAPH SHALL BE IN LIEU OF ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. The buyer's sole and exclusive remedy against Tnemec Company, Inc. shall be for replacement of the product in the event a defective condition of the product should be found to exist and the exclusive remedy shall not have failed its essential purpose as long as Tnemec is willing to provide comparable replacement product to the buyer. NO OTHER REMEDY (INCLUDING, BUT NOT LIMITED TO, INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR LOST PROFITS, LOST SALES, INJURY TO PERSON OR PROPERTY, ENVIRONMENTAL INJURIES OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL LOSS) SHALL BE AVAILABLE TO THE BUYER. Technical and application information herein is provided for the purpose of establishing a general profile of the coating and proper coating application procedures. Test performance results were obtained in a controlled environment and Tnemec Company makes no claim that these tests or any other tests, accurately represent all environments. As application, environmental and design factors can vary significantly, due care should be exercised in the selection and use of the coating.

Tnemec Company, Inc. 6800 Corporate Drive Kansas City, Missouri 64120-1372 +1 816-483-3400 www.tnemec.com



Safety Data Sheet

Issue Date No data available

Revision Date 06-Mar-2015

Revision Number 5

1. IDENTIFICATION

Product identifier

Product Code F073-00WHA
Product Name ENDURA-SHIELD TNEMEC WHITE

Other means of identification

Common Name SERIES 73 PART A
UN/ID no. 1263

Recommended use of the chemical and restrictions on use

Recommended Use industrial paint.
Uses advised against Consumer use, For professional use only. Not for residential use.

Details of the supplier of the safety data sheet

Manufacturer Address
Tnemec Company, Inc. 6800 Corporate Drive, Kansas City, MO 64120-1372

Emergency telephone number

Company Phone Number Tnemec Regulatory Dept: 816-474-3400
24 Hour Emergency Phone Number 800-535-5053 (Infotrac)

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Category 4
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Serious eye damage/eye irritation	Category 2A
Germ cell mutagenicity	Category 1B
Carcinogenicity	Category 1A
Reproductive Toxicity	Category 1B
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 1
Flammable Liquids	Category 2

Label elements

EMERGENCY OVERVIEW

Danger

Hazard statements

Harmful if swallowed
Causes serious eye irritation
May cause cancer
May damage fertility or the unborn child
May cause respiratory irritation. May cause drowsiness or dizziness
Causes damage to organs through prolonged or repeated exposure
Harmful if inhaled
May cause genetic defects
Highly flammable liquid and vapor

**Appearance** opaque**Physical state** liquid**Odor** aromatic Petroleum distillates**Precautionary Statements****Prevention**

Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Do not breathe dust/fume/gas/mist/vapors/spray
Keep away from heat/sparks/open flames/hot surfaces. – No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/mixing/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool

Response

IF exposed or concerned: Get medical advice/attention
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
In case of fire: Use CO₂, dry chemical, or foam for extinction

Storage

Store locked up
Store in a well-ventilated place. Keep container tightly closed
Keep away from children

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)**Other information**

Causes mild skin irritation

May be harmful in contact with skin

Cancer hazard. Contains crystalline silica which can cause cancer. (Risk of cancer depends on duration and level of exposure).

SEE SAFETY DATA SHEET

Toxic to aquatic life with long lasting effects

Respirable crystalline silica (quartz) can cause silicosis, a fibrosis (scarring) of the lungs

Acute Toxicity 55.69779 % of the mixture consists of ingredient(s) of unknown toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No	Weight-%
TITANIUM DIOXIDE (TOTAL DUST)	13463-67-7	10 - 30%
PROPYLENE GLYCOL MONOMETHYL ETHER ACETATE	108-65-6	10 - 30%
CRYSTALLINE SILICA (QUARTZ)	14808-60-7	10 - 30%
METHYL ETHYL KETONE	78-93-3	1 - 10%
AMORPHOUS SILICA	7631-86-9	1 - 10%
BENZENE, 1,4-DIMETHYL	106-42-3	0.1 - 1%
ALUMINUM HYDROXIDE	21645-51-2	0.1 - 1%
BENZENE, 1,3-DIMETHYL	108-38-3	0.1 - 1%
ETHYL BENZENE	100-41-4	0.1 - 1%
ZIRCONIUM OXIDE	1314-23-4	0.1 - 1%
BENZENE, 1,2-DIMETHYL	95-47-6	0.1 - 1%

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures

General advice	If symptoms persist, call a physician.
Eye contact	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. If symptoms persist, call a physician.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If symptoms persist, call a physician.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion	If swallowed, do not induce vomiting. Get medical attention immediately. Rinse mouth.
Self-protection of the first aider	Use personal protective equipment. Avoid contact with eyes, skin and clothing.

Most important symptoms and effects, both acute and delayed

Notes to physician	Treat symptomatically.
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5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Carbon dioxide (CO₂). Foam. Dry chemical.

Unsuitable extinguishing media Water.

Specific hazards arising from the chemical

Thermal decomposition can lead to release of irritating gases and vapours In the event of fire and/or explosion do not breathe fumes

Hazardous combustion products Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. Carbon oxides. Hydrocarbons.

Protective equipment and precautions for firefighters

Use water spray to cool unopened containers. In the event of fire, wear self-contained breathing apparatus. Keep away from heat/sparks/open flames/hot surfaces. MAY CAUSE HEAT AND PRESSURE BUILD-UP IN CLOSED CONTAINERS. Solvent vapors are heavier than air and may spread along floors. Flash back possible over considerable distance.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with eyes, skin and clothing. Use personal protective equipment. Remove all sources of ignition.

Environmental Precautions

Environmental precautions Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system.

Methods and material for containment and cleaning up

Methods for containment Remove all sources of ignition. Spills may be collected with inert, absorbent material for proper disposal. Use non-sparking tools, protective gloves, goggles and clothing, adequate ventilation, avoid the breathing of vapors and use respiratory protective devices. Transfer absorbent material to suitable containers for proper disposal.

Methods for cleaning up If spilled, contain spilled material and remove with inert absorbent. Dispose of contaminated absorbent, container and unused contents in accordance with local, state and federal regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Close container after each use. Avoid contact with eyes, skin and clothing. Do not eat, drink or smoke when using this product. If splashes are likely to occur, wear goggles. Wear protective gloves/clothing. Do not burn, or use a cutting torch on, the empty drum. When used in a mixture, read the labels and safety data sheets of all components. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Storage Keep away from heat, sparks and flame. Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children.

Incompatible products Acids. Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters**Exposure guidelines**

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
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TITANIUM DIOXIDE (TOTAL DUST) 13463-67-7	TWA: 10 mg/m ³	TWA: 10 mg/m ³ TWA: 15 mg/m ³	5000 mg/m ³
CRYSTALLINE SILICA (QUARTZ) 14808-60-7	TWA: 0.025 mg/m ³	TWA: 0.1 mg/m ³	50 mg/m ³
METHYL ETHYL KETONE 78-93-3	TWA: 200 ppm STEL: 300 ppm	TWA: 200 ppm TWA: 590 mg/m ³ STEL: 300 ppm STEL: 885 mg/m ³	3000 ppm
AMORPHOUS SILICA 7631-86-9	-	TWA: 6 mg/m ³	3000 mg/m ³
BENZENE, 1,4-DIMETHYL 106-42-3	TWA: 100 ppm STEL: 150 ppm	-	900 ppm
ALUMINUM HYDROXIDE 21645-51-2	TWA: 1 mg/m ³	-	
BENZENE, 1,3-DIMETHYL 108-38-3	TWA: 100 ppm STEL: 150 ppm	-	900 ppm
ETHYL BENZENE 100-41-4	TWA: 20 ppm	TWA: 100 ppm TWA: 435 mg/m ³ STEL: 125 ppm STEL: 545 mg/m ³	800 ppm
ZIRCONIUM OXIDE 1314-23-4	TWA: 5 mg/m ³	-	25 mg/m ³
BENZENE, 1,2-DIMETHYL 95-47-6	TWA: 100 ppm STEL: 150 ppm	-	900 ppm

Appropriate engineering controls**Engineering measures**

Sufficient ventilation, in volume and pattern, should be provided through both local and general exhaust to keep the air contaminant concentration below current applicable OSHA Permissible Exposure Limits (PEL) and ACGIH's Threshold Limit Values (TLV). Appropriate ventilation should be employed to remove hazardous decomposition products formed during welding or flame cutting operations of surfaces coated with this product.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Use chemical resistant splash type goggles. If splashes are likely to occur, wear face-shield.

Skin and body protection

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection

Use only with adequate ventilation. Do not breathe vapors, spray mist, or dust. Ensure fresh air entry during application and drying. If you experience eye watering, headache or dizziness or if air monitoring demonstrates vapor/mist or dust levels are above applicable limits, wear an appropriate, properly fitted respirator (NIOSH/MSHA approved) during and after application. Follow respirator manufacturer's directions for respirator use.

General hygiene considerations

Do not eat, drink or smoke when using this product. This product contains crystalline silica (quartz) in a non-respirable form. Inhalation of crystalline silica is unlikely to occur from exposure to this product.

9. PHYSICAL AND CHEMICAL PROPERTIES
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Information on basic physical and chemical properties

Physical state	liquid	Odor	aromatic Petroleum
Appearance	opaque		distillates
Color	No information available	Odor threshold	No information available

<u>Property</u>	<u>Values</u>	<u>Remarks</u>
pH		No data available
Melting point / freezing point		No data available
Boiling point / boiling range	78 °C / 172.0 °F	
Flash point	13 °C / 55.0 °F	
Evaporation rate		Pensky Martens - Closed Cup
Flammability (solid, gas)		No data available
Flammability Limit in Air		No information available
Upper flammability limit	N/A	No data available
Lower flammability limit	1.5%	
Vapor pressure		No data available
Vapor density		No data available
Specific gravity	1.52315	g/cm3
Water solubility	Insoluble in cold water	
Solubility in other solvents		No data available
Partition coefficient: n-octanol/water		No data available
Autoignition temperature		No data available
Decomposition temperature		No data available
Kinematic viscosity		No data available
Dynamic viscosity	2000 centipoises	

Other Information

Density	12.70311 lbs/gal
Volatile organic compounds (VOC) content	3.07415 lbs/gal
Total volatiles weight percent	24.2 %
Total volatiles volume percent	40.24 %

10. STABILITY AND REACTIVITY**Reactivity**

No data available

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

None under normal processing.

Conditions to avoid

Heat, flames and sparks. Reacts with air to form peroxides.

Incompatible materials

Acids, Strong oxidizing agents

Hazardous decomposition products

Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. Carbon oxides. Hydrocarbons.

11. TOXICOLOGICAL INFORMATION**Information on Likely Routes of Exposure**

Inhalation	May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination.
Eye contact	Causes serious eye irritation.
Skin contact	Irritating to skin.

Ingestion

Harmful if swallowed.

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
TITANIUM DIOXIDE (TOTAL DUST) 13463-67-7	> 10000 mg/kg (Rat)		
PROPYLENE GLYCOL MONOMETHYL ETHER ACETATE 108-65-6	= 8532 mg/kg (Rat)	> 5 g/kg (Rabbit)	
CRYSTALLINE SILICA (QUARTZ) 14808-60-7	= 500 mg/kg (Rat)		
METHYL ETHYL KETONE 78-93-3	= 2737 mg/kg (Rat) = 2483 mg/kg (Rat)	= 5000 mg/kg (Rabbit) = 6480 mg/kg (Rabbit)	= 11700 ppm (Rat) 4 h
AMORPHOUS SILICA 7631-86-9	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 2.2 mg/L (Rat) 1 h
BENZENE, 1,4-DIMETHYL 106-42-3	= 4029 mg/kg (Rat)		= 4740 ppm (Rat) 4 h = 4550 ppm (Rat) 4 h
ALUMINUM HYDROXIDE 21645-51-2	> 5000 mg/kg (Rat)		
BENZENE, 1,3-DIMETHYL 108-38-3	= 5000 mg/kg (Rat)	= 14100 µL/kg (Rabbit)	
ETHYL BENZENE 100-41-4	= 3500 mg/kg (Rat)	= 15400 mg/kg (Rabbit)	= 17.2 mg/L (Rat) 4 h
BENZENE, 1,2-DIMETHYL 95-47-6	= 3608 mg/kg (Rat)	= 14100 mg/kg (Rabbit)	= 4330 ppm (Rat) 6 h

Information on toxicological effects**Symptoms**

Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
Skin disorders.

Delayed and immediate effects as well as chronic effects from short and long-term exposure**Chronic Toxicity**

Cancer hazard. Contains crystalline silica which can cause cancer. (Risk of cancer depends on duration and level of exposure). NOTICE: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

Sensitization

No information available.

Mutagenicity

May cause genetic defects.

Carcinogenicity

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	ACGIH	IARC	NTP	OSHA
TITANIUM DIOXIDE (TOTAL DUST) 13463-67-7		Group 2B		X
CRYSTALLINE SILICA (QUARTZ) 14808-60-7	A2	Group 1	Known	X
AMORPHOUS SILICA 7631-86-9		Group 3		
BENZENE, 1,4-DIMETHYL 106-42-3		Group 3		
BENZENE, 1,3-DIMETHYL 108-38-3		Group 3		
ETHYL BENZENE 100-41-4	A3	Group 2B		X
BENZENE, 1,2-DIMETHYL 95-47-6		Group 3		

Reproductive effects

May damage fertility or the unborn child.

STOT - single exposure

Eyes, Central Nervous System (CNS), Skin

STOT - repeated exposure

Causes damage to organs through prolonged or repeated exposure

Target organ effects

blood, Central nervous system, Gastrointestinal tract, Eyes, kidney, liver, Lungs, respiratory system, Skin.

Aspiration hazard

No information available.

Acute Toxicity

55.69779 % of the mixture consists of ingredient(s) of unknown toxicity.

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Toxic to aquatic life with long lasting effects

48.07419 % of the mixture consists of components(s) of unknown hazards to the aquatic environment

Component	Toxicity to algae	Toxicity to fish	Toxicity to daphnia
PROPYLENE GLYCOL MONOMETHYL ETHER ACETATE 108-65-6		161: 96 h Pimephales promelas mg/L LC50 static	500: 48 h Daphnia magna mg/L EC50
METHYL ETHYL KETONE 78-93-3		3130 - 3320: 96 h Pimephales promelas mg/L LC50 flow-through	5091: 48 h Daphnia magna mg/L EC50 520: 48 h Daphnia magna mg/L EC50 4025 - 6440: 48 h Daphnia magna mg/L EC50 Static
AMORPHOUS SILICA 7631-86-9	440: 72 h Pseudokirchneriella subcapitata mg/L EC50	5000: 96 h Brachydanio rerio mg/L LC50 static	7600: 48 h Ceriodaphnia dubia mg/L EC50
BENZENE, 1,4-DIMETHYL 106-42-3	3.2: 72 h Pseudokirchneriella subcapitata mg/L EC50 static 105.1: 3 h Chlorella vulgaris mg/L EC50	2.6: 96 h Oncorhynchus mykiss mg/L LC50 8.8: 96 h Poecilia reticulata mg/L LC50 semi-static 7.2 - 9.9: 96 h Pimephales promelas mg/L LC50 static 2.6: 96 h Oncorhynchus mykiss mg/L LC50 static	3.55 - 6.31: 48 h Daphnia magna mg/L EC50 Static
BENZENE, 1,3-DIMETHYL 108-38-3	4.9: 72 h Pseudokirchneriella subcapitata mg/L EC50 static	8.4: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 14.3 - 18: 96 h Pimephales promelas mg/L LC50 flow-through 12.9: 96 h Poecilia reticulata mg/L LC50 semi-static	2.81 - 5.0: 48 h Daphnia magna mg/L EC50 Static
ETHYL BENZENE 100-41-4	4.6: 72 h Pseudokirchneriella subcapitata mg/L EC50 438: 96 h Pseudokirchneriella subcapitata mg/L EC50 2.6 - 11.3: 72 h Pseudokirchneriella subcapitata mg/L EC50 static 1.7 - 7.6: 96 h Pseudokirchneriella subcapitata mg/L EC50 static	11.0 - 18.0: 96 h Oncorhynchus mykiss mg/L LC50 static 32: 96 h Lepomis macrochirus mg/L LC50 static 4.2: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 7.55 - 11: 96 h Pimephales promelas mg/L LC50 flow-through 9.6: 96 h Poecilia reticulata mg/L LC50 static 9.1 - 15.6: 96 h Pimephales promelas mg/L LC50 static	1.8 - 2.4: 48 h Daphnia magna mg/L EC50
BENZENE, 1,2-DIMETHYL 95-47-6	4.2: 192 h Pseudokirchneriella subcapitata mg/L EC50 4.7: 72 h Pseudokirchneriella subcapitata mg/L EC50 static	11.6 - 22.4: 96 h Pimephales promelas mg/L LC50 flow-through 12: 96 h Poecilia reticulata mg/L LC50 11.6 - 22.4: 96 h Lepomis macrochirus mg/L LC50 flow-through 5.59 - 11.6: 96 h Oncorhynchus mykiss mg/L LC50 flow-through	3.2: 48 h Daphnia magna mg/L EC50 0.78 - 2.51: 48 h Daphnia magna mg/L EC50 Static 2.61 - 5.59: 48 h Daphnia magna mg/L EC50 Flow through

Persistence and degradability

No information available.

Bioaccumulation

No information available.

Mobility in Environmental Media

Component	log Pow
PROPYLENE GLYCOL MONOMETHYL ETHER ACETATE 108-65-6	0.43
METHYL ETHYL KETONE 78-93-3	0.29
BENZENE, 1,4-DIMETHYL 106-42-3	3.15

BENZENE, 1,3-DIMETHYL 108-38-3	3.2
ETHYL BENZENE 100-41-4	3.118
BENZENE, 1,2-DIMETHYL 95-47-6	3.12

Other Adverse Effects No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal Methods Keep container tightly closed. If spilled, contain spilled material and remove with inert absorbent. Dispose of contaminated absorbent, container and unused contents in accordance with local, state and federal regulations.

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

Component	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
METHYL ETHYL KETONE 78-93-3	U159	Included in waste streams: F005, F039	200.0 mg/L regulatory level	U159
ETHYL BENZENE 100-41-4		Included in waste stream: F039		

Component	CAWAST
METHYL ETHYL KETONE 78-93-3	Toxic Ignitable
ETHYL BENZENE 100-41-4	Toxic Ignitable

14. TRANSPORT INFORMATION

DOT

UN/ID no. 1263
 Proper Shipping Name paint
 Hazard Class 3
 Packing Group III
 Emergency Response Guide Number 128

IATA

UN/ID no. 1263
 Proper Shipping Name paint
 Hazard Class 3
 Packing Group III
 ERG Code 366

Additional information

Call TNEMEC Traffic Department - 816-474-3400 for additional information or other modes of Transportation.

15. REGULATORY INFORMATION

International Inventories

TSCA Complies
 DSL/NDL Complies
 EINECS/ELINCS Does not comply
 ENCS Does not comply
 IECSC Complies

KECL	Does not comply
PICCS	Does not comply
AICS	Complies

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

Component

HAPS Data

BENZENE, 1,4-DIMETHYL

BENZENE, 1,3-DIMETHYL

ETHYL BENZENE

BENZENE, 1,2-DIMETHYL

United States of America

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Component	SARA 313 - Threshold Values
METHYL ETHYL KETONE - 78-93-3	1.0
BENZENE, 1,4-DIMETHYL - 106-42-3	1.0
BENZENE, 1,3-DIMETHYL - 108-38-3	1.0
ETHYL BENZENE - 100-41-4	0.1
BENZENE, 1,2-DIMETHYL - 95-47-6	1.0

SARA 311/312 Hazardous

Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Component	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
BENZENE, 1,4-DIMETHYL 106-42-3				X
BENZENE, 1,3-DIMETHYL 108-38-3				X
ETHYL BENZENE 100-41-4	1000 lb	X	X	X
BENZENE, 1,2-DIMETHYL 95-47-6				X

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs	RQ
METHYL ETHYL KETONE 78-93-3	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ
BENZENE, 1,4-DIMETHYL 106-42-3	100 lb		RQ 100 lb final RQ RQ 45.4 kg final RQ
BENZENE, 1,3-DIMETHYL 108-38-3	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ
ETHYL BENZENE 100-41-4	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ

BENZENE, 1,2-DIMETHYL 95-47-6	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ
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United States of America**California Prop. 65**

WARNING! This product contains a chemical known in the State of California to cause cancer

Component	California Prop. 65
TITANIUM DIOXIDE (TOTAL DUST) - 13463-67-7	Carcinogen
CRYSTALLINE SILICA (QUARTZ) - 14808-60-7	Carcinogen
ETHYL BENZENE - 100-41-4	Carcinogen

California SCAQMD Rule 443

Contains Photochemically Reactive Solvent

State Right-to-Know

Component	New Jersey	Massachusetts	Pennsylvania
TITANIUM DIOXIDE (TOTAL DUST) 13463-67-7	X	X	X
CRYSTALLINE SILICA (QUARTZ) 14808-60-7	X	X	X
METHYL ETHYL KETONE 78-93-3	X	X	X
AMORPHOUS SILICA 7631-86-9	X	X	X
BENZENE, 1,4-DIMETHYL 106-42-3	X	X	X
BENZENE, 1,3-DIMETHYL 108-38-3	X	X	X
ETHYL BENZENE 100-41-4	X	X	X
ZIRCONIUM OXIDE 1314-23-4		X	
BENZENE, 1,2-DIMETHYL 95-47-6	X	X	X

16. OTHER INFORMATION**NFPA**

Health 2

Flammability 3

Instability 1

Physical hazard *

HMIS (Hazardous

Health 2*

Flammability 3

Reactivity 1

**Material Information
System)**

Prepared By

Tnemec Regulatory Dept: 816-474-3400

Revision Date

06-Mar-2015

Revision Summary

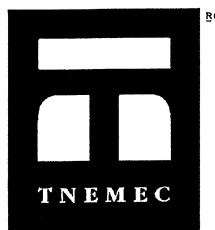
4 5 7 10 8 9 11 14

Disclaimer

For specific information regarding occupational safety and health standards, please refer to the Code of Federal Regulations, Title 29, Part 1910.

To the best of our knowledge, the information contained herein is accurate. However, neither the Tnemec Company or any of its subsidiaries assume any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist.

End of MSDS



Safety Data Sheet

Issue Date 22-Jun-2015

Revision Date 22-Jun-2015

Revision Number 11

1. IDENTIFICATION

Product identifier

Product Code F073-0073B
Product Name ENDURA-SHIELD CONVERTER

Other means of identification

Common Name SERIES 73 PART B

Recommended use of the chemical and restrictions on use

Recommended Use industrial paint.
Uses advised against Consumer use, For professional use only. Not for residential use.

Details of the supplier of the safety data sheet

Manufacturer Address
Tnemec Company, Inc. 6800 Corporate Drive, Kansas City, MO 64120-1372

Emergency telephone number

Company Phone Number Tnemec Regulatory Dept: 816-474-3400
24 Hour Emergency Phone Number 800-535-5053 (Infotrac)

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Serious eye damage/eye irritation	Category 2B
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 2
Flammable Liquids	Category 3

Label elements

EMERGENCY OVERVIEW

WARNING

Hazard statements

Causes eye irritation
May cause respiratory irritation. May cause drowsiness or dizziness
May cause damage to organs through prolonged or repeated exposure
Flammable liquid and vapor

**Appearance** clear**Physical state** liquid**Odor** aromatic**Precautionary Statements****Prevention**

Wash face, hands and any exposed skin thoroughly after handling
 Use only outdoors or in a well-ventilated area
 Do not breathe dust/fume/gas/mist/vapors/spray
 Keep away from heat/sparks/open flames/hot surfaces. — No smoking
 Keep container tightly closed
 Ground/bond container and receiving equipment
 Use explosion-proof electrical/ventilating/lighting/mixing/equipment
 Use only non-sparking tools
 Take precautionary measures against static discharge
 Wear protective gloves/protective clothing/eye protection/face protection
 Keep cool

Response

Get medical advice/attention if you feel unwell
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 If eye irritation persists: Get medical advice/attention
 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
 Call a POISON CENTER or doctor/physician if you feel unwell
 In case of fire: Use CO₂, dry chemical, or foam for extinction

Storage

Store in a well-ventilated place. Keep container tightly closed
 Store locked up

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)**Other information**

May be harmful in contact with skin
 Toxic to aquatic life with long lasting effects
 Acute Toxicity 1E-06 % of the mixture consists of ingredient(s) of unknown toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No	Weight-%
HEXAMETHYLENE DIISOCYANATE (HDI) POLYMER	28182-81-2	30 - 60%
P-CHLOROBENZOTRIFLUORIDE	98-56-6	30 - 60%
HEXAMETHYLENE DIISOCYANATE (HDI) MONOMER	822-06-0	0.1 - 1%

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures

General advice	Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If skin irritation persists, call a physician.
Inhalation	Remove affected individual to fresh air. Treat symptomatically. If breathing is difficult, administer oxygen. If breathing has stopped give artificial respiration. Consult a physician.
Ingestion	If swallowed, do not induce vomiting. Get medical attention immediately.
Self-protection of the first aider	Use personal protective equipment. Avoid contact with eyes, skin and clothing.

Most important symptoms and effects, both acute and delayed

Most important symptoms and effects Breathing difficulties. Asthma-like and/ or skin allergy-like symptoms.

Notes to physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES**Suitable extinguishing media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Foam, carbon dioxide, and dry chemical.

Unsuitable extinguishing media Water.

Specific hazards arising from the chemical

Thermal decomposition can lead to release of irritating gases and vapours In the event of fire and/or explosion do not breathe fumes

Hazardous combustion products Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment and emergency procedures**

Personal precautions Avoid contact with eyes, skin and clothing. Use personal protective equipment. Remove all sources of ignition. Keep people away from and upwind of spill/leak. Ensure adequate ventilation.

Environmental Precautions

Environmental precautions Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system.

Methods and material for containment and cleaning up

Methods for containment Remove all sources of ignition. Spills may be collected with inert, absorbent material for proper disposal. Use non-sparking tools, protective gloves, goggles and clothing, adequate ventilation, avoid the breathing of vapors and use respiratory protective devices. Transfer absorbent material to suitable containers for proper disposal.

Methods for cleaning up If spilled, contain spilled material and remove with inert absorbent. Dispose of contaminated absorbent, container and unused contents in accordance with local, state and federal regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling **Use only with adequate ventilation.** Avoid contact with eyes, skin and clothing. Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Do not eat, drink or smoke when using this product. When used in a mixture, read the labels and safety data sheets of all components. Wash thoroughly after handling. Do not breathe vapours or spray mist.

Conditions for safe storage, including any incompatibilities

Storage Close container after each use. Keep away from heat, sparks and flame. Use only in an area containing flame proof equipment. Prevent build-up of vapors by opening all windows and doors to achieve cross ventilation. Keep out of the reach of children.

Incompatible products Incompatible with strong acids and bases. Water. Alcohols. Amines. Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
P-CHLOROBENZOTRIFLUORIDE 98-56-6	TWA: 2.5 mg/m ³	-	
HEXAMETHYLENE DIISOCYANATE (HDI) MONOMER 822-06-0	TWA: 0.005 ppm	-	

Appropriate engineering controls

Engineering measures Sufficient ventilation, in volume and pattern, should be provided through both local and general exhaust to keep the air contaminant concentration below current applicable OSHA Permissible Exposure Limits (PEL) and ACGIH's Threshold Limit Values (TLV). Appropriate ventilation should be employed to remove hazardous decomposition products formed during welding or flame cutting operations of surfaces coated with this product.

Individual protection measures, such as personal protective equipment

Eye/face protection Safety glasses with side-shields If splashes are likely to occur, wear face-shield.

Skin and body protection Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection

INDIVIDUALS WITH LUNG OR BREATHING PROBLEMS OR PRIOR REACTION TO ISOCYANATES MUST NOT BE EXPOSED TO VAPOR OR SPRAY MIST. Do not breathe vapor or spray mist. Wear an appropriate, properly fitted respirator (NIOSH/MSHA approved) during and after application unless air monitoring demonstrates vapor/mist levels are below applicable limits. An airline respirator (TC 19C NIOSH/MSHA) is recommended. A vapor-particulate respirator (TC 23C NIOSH/MSHA) may be appropriate where air monitoring demonstrates vapors are less than ten times the applicable exposure limits and the isocyanate concentration is less than its applicable exposure limit. The use of an air-supplied respirator is mandatory whenever the airborne concentration of isocyanate monomer is unknown.

General hygiene considerations

Remove and wash contaminated clothing before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES**Information on basic physical and chemical properties**

Physical state	liquid		
Appearance	clear	Odor	aromatic
Color	No information available	Odor threshold	No information available
<u>Property</u>	<u>Values</u>	<u>Remarks</u>	
pH		No data available	
Melting point / freezing point		No data available	
Boiling point / boiling range	139.0 °C / 282.0 °F		
Flash point	40 °C / 104.0 °F	Pensky Martens - Closed Cup	
Evaporation rate		No data available	
Flammability (solid, gas)		No information available	
Flammability Limit in Air		No data available	
Upper flammability limit	N/A		
Lower flammability limit	N/A		
Vapor pressure		No data available	
Vapor density		No data available	
Specific gravity	1.23332	g/cm3	
Water solubility	Insoluble in cold water		
Solubility in other solvents		No data available	
Partition coefficient: n-octanol/water		No data available	
Autoignition temperature		No data available	
Decomposition temperature		No data available	
Kinematic viscosity		No data available	
Dynamic viscosity	60 centipoises		

Other Information

Density	10.26311 lbs/gal
Volatile organic compounds (VOC) content	.000 lbs/gal
Total volatiles weight percent	49.0030 %
Total volatiles volume percent	44.9040 %

10. STABILITY AND REACTIVITY**Reactivity**

Water reactive, Amines, Alcohols

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

None under normal processing.

Conditions to avoid

Protect from water. Heat, flames and sparks.

Incompatible materials

Incompatible with strong acids and bases, Water, Alcohols, Amines, Strong oxidizing agents

Hazardous decomposition products

Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. Carbon dioxide. Hydrocarbons.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation	May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination. Contains isocyanate monomer. If subject to spray application, engineering and administrative controls must be instituted to maintain an exposure level below .005ppm. If these controls are not adequate, the use of an air-supplied respirator is mandatory. May cause sensitization by inhalation.
Eye contact	Irritating to eyes.
Skin contact	Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.
Ingestion	Harmful if swallowed.

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
HEXAMETHYLENE DIISOCYANATE (HDI) POLYMER 28182-81-2			= 18500 mg/m ³ (Rat) 1 h
P-CHLOROBENZOTRIFLUORIDE 98-56-6	= 13 g/kg (Rat)	> 2 mL/kg (Rabbit)	= 33 mg/L (Rat) 4 h
HEXAMETHYLENE DIISOCYANATE (HDI) MONOMER 822-06-0	= 738 mg/kg (Rat)	= 593 mg/kg (Rabbit)	= 0.06 mg/L (Rat) 4 h

Information on toxicological effects

Symptoms	Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
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Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity	Avoid repeated exposure. Contains isocyanates. May produce an allergic reaction.
Sensitization	May cause sensitization of susceptible persons.
Mutagenicity	No information available.
Carcinogenicity	There are no known carcinogenic chemicals in this product.
Reproductive effects	No information available.
STOT - single exposure	May cause disorder and damage to the, Respiratory system, liver, kidney
STOT - repeated exposure	Causes damage to organs through prolonged or repeated exposure, liver, kidney
Aspiration hazard	Based on product level data, this product does not meet the requirement to be classified as an aspiration hazard. However, this product contains an ingredient that may cause aspiration if swallowed.

Acute Toxicity	1E-06 % of the mixture consists of ingredient(s) of unknown toxicity.
The following values are calculated based on chapter 3.1 of the GHS document .	

12. ECOLOGICAL INFORMATION

Ecotoxicity

Toxic to aquatic life with long lasting effects

50.64002 % of the mixture consists of component(s) of unknown hazards to the aquatic environment

Component	Toxicity to algae	Toxicity to fish	Toxicity to daphnia
P-CHLOROBENZOTRIFLUORIDE 98-56-6		11.5 - 15.8: 48 h Lepomis macrochirus mg/L LC50 static	3.68: 48 h Daphnia magna mg/L EC50
HEXAMETHYLENE DIISOCYANATE (HDI) MONOMER 822-06-0		26.1: 96 h Brachydanio rerio mg/L LC50 static	

Persistence and degradability

No information available.

Bioaccumulation

No information available.

Mobility in Environmental Media

Component	log Pow
P-CHLOROBENZOTRIFLUORIDE 98-56-6	3.7

Other Adverse Effects

No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods**Disposal Methods**

Keep container tightly closed. If spilled, contain spilled material and remove with inert absorbent. Dispose of contaminated absorbent, container and unused contents in accordance with local, state and federal regulations.

Contaminated packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal.

US EPA Waste Number

No data available

California Hazardous Waste Status

Not applicable

14. TRANSPORT INFORMATION

DOT

Proper Shipping Name paint in oil Not regulated

IATA

UN/ID no. 1263
Proper Shipping Name paint
Hazard Class 3
Packing Group III
ERG Code 366

IMDG/IMO

Proper Shipping Name paint, Not regulated

Additional information

Call TNEMEC Traffic Department - 816-474-3400 for additional information or other modes of Transportation.

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

Component	HAPS Data
HEXAMETHYLENE DIISOCYANATE (HDI) MONOMER	

United States of America

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Component	SARA 313 - Threshold Values
HEXAMETHYLENE DIISOCYANATE (HDI) MONOMER - 822-06-0	1.0

SARA 311/312 Hazardous

Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act No information available

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs	RQ
HEXAMETHYLENE DIISOCYANATE (HDI) MONOMER 822-06-0	100 lb		RQ 100 lb final RQ RQ 45.4 kg final RQ

United States of America

California Prop. 65

This product does not contain any Proposition 65 chemicals

California SCAQMD Rule 443

Contains Photochemically Reactive Solvent

State Right-to-Know

Component	New Jersey	Massachusetts	Pennsylvania
P-CHLOROBENZOTRIFLUORIDE 98-56-6	X		X

HEXAMETHYLENE DIISOCYANATE (HDI) MONOMER 822-06-0	X	X	
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16. OTHER INFORMATION

NFPA
HMIS (Hazardous
Material Information
System)

Health 2
Health 2*

Flammability 2
Flammability 2

Instability 1
Reactivity 1

Physical hazard *

Prepared By
Revision Date
Revision Summary
4 5 7 10 11 14 6 9 8

Tnemec Regulatory Dept: 816-474-3400
22-Jun-2015

Disclaimer

For specific information regarding occupational safety and health standards, please refer to the Code of Federal Regulations, Title 29, Part 1910.

To the best of our knowledge, the information contained herein is accurate. However, neither the Tnemec Company or any of its subsidiaries assume any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist.

End of MSDS



ATTACHMENT - C



RH2 ENGINEERING, INC.
4164 MERIDIAN STREET, STE 302
BELLINGHAM, WA 98226
PH 360.676.0836 OR 800.720.8052
F 425.951.5401

CHANGE ORDER NO. 003

PROJECT:	297 Zone Knittle II Reservoir		
DATE OF ISSUANCE:	03/24/20		
OWNER:	City of Stanwood	BID ITEMS:	NA
CONTRACTOR:	T Bailey, Inc.	ENGINEER:	RH2 Engineering, Inc.

You are directed to make the following changes in the Contract Documents

Description: 30 calendar day time extension to drain existing tank (additional 5 calendar day allowance) and perform surface preparation including pressure wash cleaning, spot tooling, spot prime all tooled locations and overcoat (25 calendar day allowance) per details described in Letter dated 2/3/20 for Coating System for Exterior Steel. *Reservoir shall be empty of water before and during any tooling, priming or overcoat work.*

Documents Supporting Changes: 2/3/20 Letter from Tnemec to T Bailey, File Name: Submittal 27.0 and 3/2/20 Letter from T Bailey to RH2 with costs for "COP 634-02"

Original Contract Price:

\$2,269,250.00 (excluding WA sales tax)

Previous Approved Change Order(s):

(\$5,611.12)

Total of Previous Change Orders:

\$37,704.82

Change Order(s) approved this Form:

Change Order Number 003

Total of Change Order(s) Approved this Form:

\$37,704.82

Contract Price with all Approved Change Orders:

\$2,301,343.70

Original Contract Time:

200 calendar days + 60 calendar days

Net Change Approved from Previous Change Orders:

4 calendar days

Contract Time Prior to the Change Order:

204 calendar days + 60 calendar days

Net Increase (Decrease) of this Change Order:

30 calendar Days

Contract Time with All Approved Change Orders:

204 calendar days + 90 calendar days

RECOMMENDED:

By

Engineer

APPROVED:

By

Contractor

APPROVED:

By

Owner

By signing this form, the Owner and the Contractor agree to release all claims to additional work or credit or delays, occurring prior to the Date of Issuance, which have not been identified in this Change Order form.

City of Stanwood
Contract Amendment No. 3
297 Zone Reservoir Services During Construction
RH2 Project No. STA 418-152

In accordance with our Professional Services Agreement for the 297 Zone Reservoir PreDesign, Design and Services During Bidding, dated October 11, 2018, this is an authorization to revise the project Scope of Work as described below. The work will be performed and invoiced using the terms and conditions listed in the original agreement, plus previous amendments and/or agreements.

Modify the following items from the Scope of Work:

Perform additional on-site observations to observe pressure wash cleaning, tooling surface preparation, priming, and overcoat for the existing 1.0 MG Reservoir adjacent to the proposed reservoir currently being constructed.

The engineering fee authorization will increase by \$9,085.00 for a total authorization amount of **\$457,849**.

Please sign this authorization in the space provided below and return to RH2 Engineering, Inc., by mail at the address below, or by email to Contracts@RH2.com.

RH2 Engineering, Inc.

City of Stanwood

Signature

Signature

Print Name/Title

Print Name/Title

Date

RH2 Engineering, Inc. 22722 29th Drive SE, Suite 210, Bothell, WA 98021

Date

City of Stanwood, 10220 270th Street NW, Stanwood, WA 98292