



Material Safety Data Sheet

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Revision Number 1

1. PRODUCT AND COMPANY IDENTIFICATION

Common name	SERIES 394
Product code	F394-0394
Trade name	PERIMIPRIME GREENISH GREY
Product Class	AROMATIC ISOCYANATE PAINT
Manufacturer	Tnemec Company, Inc. 6800 Corporate Drive, Kansas City, MO 64120-1372
Emergency telephone	800-535-5053 (INFOTRAC) - TNE MEC REGULATORY DEPT: 816-474-3400

2. HAZARDS IDENTIFICATION

Emergency Overview

DANGER!

FLAMMABLE LIQUID AND VAPOR.
HARMFUL OR FATAL IF SWALLOWED.
HARMFUL IF INHALED.
MAY CAUSE LUNG INJURY.
MAY CAUSE ALLERGIC RESPIRATORY REACTION; EFFECTS MAY BE PERMANENT.
MAY CAUSE ALLERGIC SKIN REACTION; EFFECTS MAY BE PERMANENT.
MAY AFFECT THE BRAIN OR NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA.
MAY CAUSE EYE, SKIN, NOSE, THROAT AND RESPIRATORY TRACT IRRITATION.

Potential health effects

Principle Routes of Exposure Eye contact, Inhalation, Skin contact.

Acute effects

Eyes

Moderately irritating to the eyes. Risk of serious damage to eyes.

Skin

Irritating to skin. May cause sensitization by skin contact.

Inhalation

May cause allergic respiratory reaction. Inhalation of metallic zinc dust may result in symptoms known as metal fume fever. Symptoms include chills, fever, muscular pain, nausea and vomiting.

Ingestion

May be harmful if swallowed.

Chronic effects

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. 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.

See Section 11 for additional Toxicological information.

Aggravated Medical Conditions Central nervous system. Gastrointestinal tract. Liver disorders. Skin disorders. Respiratory disorders.

Interactive effects Use of alcoholic beverages may enhance toxic effects.

Potential environmental effects See Section 12 for additional Ecological Information

Target Organ Effects Blood, Central nervous system, Central Vascular System (CVS), Gastrointestinal tract, Eyes, Liver, Respiratory system, Skin

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components

Component	CAS-No	Weight %
IRON OXIDE FUME	1309-37-1	30 - 60
ZINC	7440-66-6	10 - 30
DIPHENYLMETHANE DIISOCYANATE (5 - 10
AROMATIC HYDROCARBON MIXTURE	64742-95-6	5 - 10
1,2,4-TRIMETHYLBENZENE	95-63-6	1 - 5
TALC (RESPIRABLE DUST)	14807-96-6	1 - 5
C.I. PIGMENT BROWN 24	68186-90-3	1 - 5
DIPHENYLMETHANE DIISOCYANATE (MDI) REACTIVE MONOMER	101-68-8	1 - 5
1,3,5-TRIMETHYLBENZENE	108-67-8	1 - 5
ACETONE	67-64-1	0.1 - 1
ANTIMONY	68186-90-3	0.1 - 1
XYLENE	1330-20-7	0.1 - 1
CHROMIC (III) OXIDE	1308-38-9	0.1 - 1

4. FIRST AID MEASURES

Eye contact: Rinse thoroughly with plenty of water for at least 15 minutes.

Skin contact: Wash off immediately with soap and plenty of water.

Ingestion: If swallowed, do not induce vomiting. Get medical attention immediately.

Inhalation: Move to fresh air. Oxygen or artificial respiration if needed.

5. FIRE-FIGHTING MEASURES

Flammable properties Flammable.

Suitable extinguishing media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Contact with water may cause violent frothing. Use: Carbon dioxide (CO₂) - Foam - Dry chemical

Hazardous decomposition products Oxides of carbon, hydrocarbons. Oxides of nitrogen. Hydrogen cyanide. Oxides of sulphur. Zinc oxide fume.

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.

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

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Personal precautions	Avoid contact with skin, eyes and clothing. Use personal protective equipment. Remove all sources of ignition.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system.
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.
Other information	Not applicable

7. HANDLING AND STORAGE

Handling

Use only with adequate ventilation. Avoid contact with skin, eyes 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.

Storage

Close container after each use. Keep away from heat, sparks and flame. VAPORS MAY CAUSE FLASH FIRE. Use only in an area containing flame proof equipment. Extinguish all flames and pilot lights, and turn off stoves, heaters, electric motors and other sources of ignition during use and until all vapors are gone. Prevent build-up of vapors by opening all windows and doors to achieve cross ventilation.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	Quebec TWAEV	Ontario TWAEV	Mexico OEL (TWA)
IRON OXIDE FUME	: 5 mg/m ³ TWA (respirable fraction)	: 10 mg/m ³ TWA (fume)	TWA: 5 mg/m ³ TWAEV (dust and fume, as Fe)	TWA: 5 mg/m ³ TWA (respirable)	: 5 mg/m ³ TWA : 10 mg/m ³ STEL (as Fe)
1,2,4-TRIMETHYLBENZENE	TWA: 25 ppm		TWA: 25 ppm TWA: 123 mg/m ³	TWA: 25 ppm TWA: 123 mg/m ³	TWA: 125 mg/m ³ TWA: 25 ppm STEL: 170 mg/m ³ STEL: 35 ppm
TALC (RESPIRABLE DUST)	: 2 mg/m ³ TWA (particulate matter containing no asbestos and <1% crystalline silica, respirable fraction)	: 2 mg/m ³ TWA (<1% Crystalline silica, containing no Asbestos, respirable dust)	TWA: 3 mg/m ³ TWAEV (respirable dust)	TWA: 2 mg/m ³ TWA (containing no Asbestos and <1% Crystalline silica, respirable)	: 2 mg/m ³ TWA (respirable fraction)
C.I. PIGMENT BROWN 24	: 0.5 mg/m ³ TWA (as Sb) : 0.5 mg/m ³ TWA (as Cr)		TWA: 0.5 mg/m ³ TWAEV (as Sb) TWA: 0.5 mg/m ³ TWAEV (as Cr)	TWA: 0.5 mg/m ³ TWA (as Sb) TWA: 0.5 mg/m ³ TWA (as Cr, listed under Chromium and inorganic compounds)	: 0.5 mg/m ³ TWA (as Sb) : 0.5 mg/m ³ TWA
DIPHENYLMETHANE DIISOCYANATE (MDI) REACTIVE MONOMER	: 0.005 ppm TWA	: 0.02 ppm Ceiling; 0.2 mg/m ³ Ceiling	TWA: 0.005 ppm TWAEV; 0.051 mg/m ³ TWAEV	TWA: 0.005 ppm TWA (designated substance regulation, listed under Isocyanates, organic compounds); 0.005 ppm TWA (applies to workplaces to which the designated substance regulation does not apply) CEV: 0.02 ppm Ceiling (designated substances regulation)	: 0.02 ppm TWA; 0.2 mg/m ³ TWA; 0.005 ppm TWA (as Methylene bisphenyl isocyanate); 0.051 mg/m ³ TWA (as Methylene bisphenyl isocyanate)
1,3,5-TRIMETHYLBENZENE	TWA: 25 ppm		TWA: 25 ppm TWA: 123 mg/m ³	TWA: 25 ppm TWA: 123 mg/m ³	TWA: 125 mg/m ³ TWA: 25 ppm STEL: 170 mg/m ³ STEL: 35 ppm

ACETONE	: 500 ppm TWA : 750 ppm STEL	: 750 ppm TWA; 1800 mg/m ³ TWA : 2400 mg/m ³ STEL (The acetone STEL does not apply to the cellulose acetate fiber industry. It is in effect for all other sectors); 1000 ppm STEL : 1000 ppm TWA; 2400 mg/m ³ TWA	TWA: 500 ppm TWAEV; 1190 mg/m ³ TWAEV STEL: 1000 ppm STEV; 2380 mg/m ³ STEV	TWA: 500 ppm TWA STEL: 750 ppm STEL	: 1000 ppm TWA; 2400 mg/m ³ TWA : 1260 ppm STEL; 3000 mg/m ³ STEL
ANTIMONY	: 0.5 mg/m ³ TWA (as Sb) : 0.5 mg/m ³ TWA (as Cr)		TWA: 0.5 mg/m ³ TWAEV (as Sb) TWA: 0.5 mg/m ³ TWAEV (as Cr)	TWA: 0.5 mg/m ³ TWA (as Sb) TWA: 0.5 mg/m ³ TWA (as Cr, listed under Chromium and inorganic compounds)	: 0.5 mg/m ³ TWA (as Sb) : 0.5 mg/m ³ TWA
XYLENE	: 100 ppm TWA : 150 ppm STEL	: 100 ppm TWA; 435 mg/m ³ TWA : 150 ppm STEL; 655 mg/m ³ STEL	TWA: 100 ppm TWAEV; 434 mg/m ³ TWAEV STEL: 150 ppm STEV; 651 mg/m ³ STEV	TWA: 100 ppm TWA STEL: 150 ppm STEL	: 100 ppm TWA; 435 mg/m ³ TWA : 150 ppm STEL; 655 mg/m ³ STEL
CHROMIC (III) OXIDE	TWA: 0.5 mg/m ³		TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³

Engineering measures

Ensure adequate ventilation, especially in confined areas

Personal Protective Equipment

Skin protection

Lightweight protective clothing, Apron, Impervious gloves

Eye/face protection

Safety glasses with side-shields

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

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Flash point	29°C / 85.0°F
Boiling range	No information available
Upper explosion limit	No information available
Lower explosion limit	No information available
Evaporation rate	No information available
Vapor pressure	No information available
Vapor density	No information available
Specific Gravity	2.54738 g/cm ³
Density	21.19804 lbs/gal
Volatile organic compounds (VOC) content	2.764 lbs/gal
Volatile by weight	13.3100 %
Volatile by volume	38.9347 %

10. STABILITY AND REACTIVITY

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Chemical stability	Stable.	Conditions to avoid	Heat, flames and sparks. Amines.
Incompatible products	Strong oxidizing agents. Bases. Acids. Alkalines. Amines. Water, alcohols, amines, strong bases, metal components, surface active materials. Water. Product may release hydrogen.	Possibility of hazardous reactions	None under normal processing

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
IRON OXIDE FUME	10000 mg/kg (Rat)		
AROMATIC HYDROCARBON MIXTURE	8400 mg/kg (Rat)	2000 mg/kg (Rabbit)	3400 ppm (Rat) 4 h 5.2 mg/L (Rat) 4 h
1,2,4-TRIMETHYLBENZENE	3400 mg/kg (Rat)	3160 mg/kg (Rabbit)	18 g/m ³ (Rat) 4 h
C.I. PIGMENT BROWN 24	10000 mg/kg (Rat)		
DIPHENYLMETHANE DIISOCYANATE (MDI) REACTIVE MONOMER	9200 mg/kg (Rat)		
1,3,5-TRIMETHYLBENZENE	5000 mg/kg (Rat)		24 g/m ³ (Rat) 4 h
ACETONE	5800 mg/kg (Rat)		
ANTIMONY	10000 mg/kg (Rat)		
XYLENE	4300 mg/kg (Rat)	1700 mg/kg (Rabbit)	5000 ppm (Rat) 4 h 47635 mg/L (Rat) 4 h

Irritation	No information available
Corrosivity	No information available
Sensitization	No information available

Chronic toxicity

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

Mutagenicity	No information available
Reproductive effects	No information available
Developmental effects	No information available
Teratogenicity	No information available
Target Organ Effects	Blood, Central nervous system, Central Vascular System (CVS), Gastrointestinal tract, Eyes, Liver, Respiratory system, Skin.
Endocrine Disruptor Information	No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Component	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia
ZINC	EC50 0.11 - 0.271 mg/L 96 h EC50 0.09 - 0.125 mg/L 72 h	LC50 0.211-0.269 mg/L Pimephales promelas 96 h LC50 2.16-3.05 mg/L Pimephales promelas 96 h LC50= 0.24 mg/L Oncorhynchus mykiss 96 h LC50= 0.41 mg/L Oncorhynchus mykiss 96 h LC50= 0.45 mg/L Cyprinus carpio 96 h LC50= 0.59 mg/L Oncorhynchus mykiss 96 h LC50= 2.66 mg/L Pimephales promelas 96 h LC50= 3.5 mg/L Lepomis macrochirus 96 h LC50= 30 mg/L Cyprinus carpio 96 h LC50= 7.8 mg/L Cyprinus carpio 96 h		EC50 0.139 - 0.908 mg/L 48 h
AROMATIC HYDROCARBON MIXTURE		LC50= 9.22 mg/L Oncorhynchus mykiss 96 h		EC50 = 6.14 mg/L 48 h
1,2,4-TRIMETHYLBENZENE		LC50 7.19-8.28 mg/L Pimephales promelas 96 h LC50= 7.72 mg/L Pimephales promelas 96 h		EC50 = 6.14 mg/L 48 h
TALC (RESPIRABLE DUST)		LC50> 100 g/L Brachydanio rerio 96 h		
C.I. PIGMENT BROWN 24		LC50> 10000 mg/L Leuciscus idus 96 h		
1,3,5-TRIMETHYLBENZENE		LC50= 3.48 mg/L Pimephales promelas 96 h LC50= 7.72 mg/L Pimephales promelas 96 h		EC50 = 50 mg/L 24 h
ACETONE		LC50 4.74 - 6.33 mL/L Oncorhynchus mykiss 96 h LC50 6210 - 8120 mg/L Pimephales promelas 96 h LC50= 8300 mg/L Lepomis macrochirus 96 h	EC50 = 14500 mg/L 15 min	EC50 10294 - 17704 mg/L 48 h EC50 12600 - 12700 mg/L 48 h
ANTIMONY		LC50> 10000 mg/L Leuciscus idus 96 h		
XYLENE		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 = 0.0084 mg/L 24 h	EC50 = 3.82 mg/L 48 h LC50 = 0.6 mg/L 48 h

13. DISPOSAL CONSIDERATIONS

Waste 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 for local recycling, recovery or waste disposal

14. TRANSPORT INFORMATION

DOT Ground Transportation Only. Call TNEMEC Traffic Department - 816-474-3400 for other modes of Transportation.

Proper shipping name UN1263,PAINT,3,PGIII,ERG 128

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Does not Comply
CHINA	Complies
ENCS	Does not Comply
KECL	Complies
PICCS	Does not Comply
AICS	Complies

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

Component
 C.I. PIGMENT BROWN 24
 DIPHENYLMETHANE DIISOCYANATE (MDI) REACTIVE MONOMER
 ANTIMONY
 XYLENE
 CHROMIC (III) OXIDE

United States of America Federal RegulationsSARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values
ZINC	7440-66-6	10 - 30	1.0 % de minimis concentration (Chemical Category N982) 1.0 % de minimis concentration (dust or fume only)
1,2,4-TRIMETHYLBENZENE	95-63-6	1 - 5	1.0 % de minimis concentration
C.I. PIGMENT BROWN 24	68186-90-3	1 - 5	1.0 % de minimis concentration (Chemical Category N010) 1.0 % de minimis concentration (except for chromite ore mined in the Transvaal Region of South Africa and the unreacted ore component of the chromite ore processing residue (COPR), Chemical Category N090)
DIPHENYLMETHANE DIISOCYANATE (MDI) REACTIVE MONOMER	101-68-8	1 - 5	1.0 % de minimis concentration (includes only those chemicals that are specifically listed, Chemical Category N120) 1.0 % de minimis concentration (listed under Chemical Category N120, Diisocyanates)

ANTIMONY	68186-90-3	0.1 - 1	1.0 % de minimis concentration (Chemical Category N010) 1.0 % de minimis concentration (except for chromite ore mined in the Transvaal Region of South Africa and the unreacted ore component of the chromite ore processing residue (COPR), Chemical Category N090)
XYLENE	1330-20-7	0.1 - 1	1.0 % de minimis concentration
CHROMIC (III) OXIDE	1308-38-9	0.1 - 1	1.0

SARA 311/312 Hazardous Categorization

Chronic Health Hazard	yes
Acute 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		X	X	
C.I. PIGMENT BROWN 24		X		
ANTIMONY		X		
XYLENE	100 lb RQ			X
CHROMIC (III) OXIDE		X		

CERCLA

United States of America State Regulations

California Prop. 65

This product contains the following Proposition 65 chemicals:

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
IRON OXIDE FUME	X	X	X		X
ZINC	X	X	X		X
1,2,4-TRIMETHYLBENZENE	X	X	X	X	X
TALC (RESPIRABLE DUST)	X	X	X		X
C.I. PIGMENT BROWN 24		X	X	X	X
DIPHENYLMETHANE DIISOCYANATE (MDI) REACTIVE MONOMER	X	X	X	X	X
1,3,5-TRIMETHYLBENZENE	X	X	X	X	X
ACETONE	X	X	X		X
ANTIMONY			X	X	X
XYLENE	X	X	X	X	X
CHROMIC (III) OXIDE	X	X	X	X	X

Other international regulations

Canada

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

WHMIS Classification
 B2 Flammable liquid
 D2A Very toxic materials



Component	NPRI
ZINC	Part 1, Group 1 Substance
AROMATIC HYDROCARBON MIXTURE	Part 5 Substance
1,2,4-TRIMETHYLBENZENE	Part 1, Group 1 Substance; Part 5 Substance
DIPHENYLMETHANE DIISOCYANATE (MDI) REACTIVE MONOMER	Part 1, Group 1 Substance
XYLENE	Part 1, Group 1 Substance; Part 5 Substance

Legend

NPRI - National Pollutant Release Inventory

16. OTHER INFORMATION

Revision Date 02-May-2011

Revision Note No information available

HMIS (Hazardous Material Information System) **Health** 3* **Flammability** 3 **Reactivity** 2

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