



Material Safety Data Sheet

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Revision Number 1

1. PRODUCT AND COMPANY IDENTIFICATION

Common name	SERIES 90G
Product code	F090G1K97
Trade name	TNEME-ZINC GREENISH GRAY
Product Class	POLYMERIC DIISOCYANATE PAINT
Manufacturer	Tnemec Company, Inc. 6800 Corporate Drive, Kansas City, MO 64120-1372
Emergency telephone	800-535-5053 (INFOTRAC) - TNEMEC REGULATORY DEPT: 816-474-3400

2. HAZARDS IDENTIFICATION

Emergency Overview

DANGER!

FLAMMABLE LIQUID AND VAPOR.
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.
HARMFUL OR FATAL IF SWALLOWED.
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	Irritating to respiratory system. May cause allergic respiratory reaction. 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.
Ingestion	May be harmful if swallowed.

Chronic effects

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).

See Section 11 for additional Toxicological information.

Aggravated Medical Conditions Central nervous system. Gastrointestinal tract. Liver disorders. Skin disorders. Kidney 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 Central nervous system, Gastrointestinal tract, Eyes, Liver, Respiratory system, Skin, Blood, Kidney

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components

Component	CAS-No	Weight %
ZINC	7440-66-6	60 - 100
DIPHENYLMETHANE DIISOCYANATE (5 - 10
XYLENE	1330-20-7	5 - 10
ETHYL BENZENE	100-41-4	1 - 5
DIPHENYLMETHANE DIISOCYANATE (MDI) REACTIVE MONOMER	101-68-8	1 - 5
ZINC OXIDE	1314-13-2	1 - 5
IRON OXIDE FUME	1309-37-1	1 - 5
CRYSTALLINE SILICA (QUARTZ)	14808-60-7	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. Zinc oxide fume. Oxides of sulphur.

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

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)
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
ETHYL BENZENE	: 100 ppm TWA : 125 ppm STEL	: 100 ppm TWA; 435 mg/m ³ TWA : 125 ppm STEL; 545 mg/m ³ STEL	TWA: 100 ppm TWAEV; 434 mg/m ³ TWAEV STEL: 125 ppm STEV; 543 mg/m ³ STEV	TWA: 100 ppm TWA STEL: 125 ppm STEL	: 100 ppm TWA; 435 mg/m ³ TWA : 125 ppm STEL; 545 mg/m ³ STEL
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)
ZINC OXIDE	: 2 mg/m ³ TWA (respirable fraction) : 10 mg/m ³ STEL (respirable fraction)	: 5 mg/m ³ TWA (fume); 10 mg/m ³ TWA (total dust); 5 mg/m ³ TWA (respirable fraction) : 10 mg/m ³ STEL (fume) : 5 mg/m ³ TWA (fume); 15 mg/m ³ TWA (total dust); 5 mg/m ³ TWA (respirable fraction)	TWA: 5 mg/m ³ TWAEV (fume); 10 mg/m ³ TWAEV (total dust, containing no asbestos and less than 1% crystalline silica) STEL: 10 mg/m ³ STEV (fume)	TWA: 2 mg/m ³ TWA (respirable) STEL: 10 mg/m ³ STEL (respirable)	: 5 mg/m ³ TWA (fume); 10 mg/m ³ TWA (dust) : 10 mg/m ³ STEL (fume)
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)
CRYSTALLINE SILICA (QUARTZ)	: 0.025 mg/m ³ TWA (respirable fraction)	: 0.1 mg/m ³ TWA (respirable dust)	TWA: 0.1 mg/m ³ TWAEV (respirable dust)	TWA: 0.10 mg/m ³ TWA (designated substance regulation, respirable)	: 0.1 mg/m ³ TWA (respirable fraction)

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	26°C / 78.0°F
Boiling range	135 - 142°C / 275.0 - 288.0°F
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	2.85700 g/cm3
Density	23.77453 lbs/gal
Volatile organic compounds (VOC) content	2.751 lbs/gal
Volatile by weight	11.5690 %
Volatile by volume	37.9046 %

10. STABILITY AND REACTIVITY

Chemical stability	Stable.	Conditions to avoid	Heat, flames and sparks. Amines.
Incompatible products	Strong oxidizing agents. Acids. Water, alcohols, amines, strong bases, metal components, surface active materials. Bases. Amines. 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
XYLENE	4300 mg/kg (Rat)	1700 mg/kg (Rabbit)	5000 ppm (Rat) 4 h 47635 mg/L (Rat) 4 h
ETHYL BENZENE	3500 mg/kg (Rat)	15354 mg/kg (Rabbit)	17.2 mg/L (Rat) 4 h

11. TOXICOLOGICAL INFORMATION			
DIPHENYLMETHANE DIISOCYANATE (MDI) REACTIVE MONOMER	9200 mg/kg (Rat)		
ZINC OXIDE	5000 mg/kg (Rat)		
IRON OXIDE FUME	10000 mg/kg (Rat)		
CRYSTALLINE SILICA (QUARTZ)	500 mg/kg (Rat)		

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

Component	ACGIH	IARC	NTP	OSHA	Mexico
ETHYL BENZENE	A3	Group 2B		X	
CRYSTALLINE SILICA (QUARTZ)	A2	Group 1	Known	X	

Mutagenicity No information available
Reproductive effects No information available
Developmental effects No information available
Teratogenicity No information available
Target Organ Effects Central nervous system, Gastrointestinal tract, Eyes, Liver, Respiratory system, Skin, Blood, Kidney.
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

Component	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia
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
ETHYL BENZENE	EC50 = 4.6 mg/L 72 h EC50 > 438 mg/L 96 h EC50 2.6 - 11.3 mg/L 72 h EC50 1.7 - 7.6 mg/L 96 h	LC50 11.0-18.0 mg/L Oncorhynchus mykiss 96 h LC50= 4.2 mg/L Oncorhynchus mykiss 96 h LC50 7.55-11 mg/L Pimephales promelas 96 h LC50= 32 mg/L Lepomis macrochirus 96 h LC50 9.1-15.6 mg/L Pimephales promelas 96 h LC50= 9.6 mg/L Poecilia reticulata 96 h	EC50 = 9.68 mg/L 30 min EC50 = 96 mg/L 24 h	EC50 1.8 - 2.4 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
XYLENE

DIPHENYLMETHANE DIISOCYANATE (MDI) REACTIVE MONOMER	X	X	X	X	X
ZINC OXIDE	X	X	X		X
IRON OXIDE FUME	X	X	X		X
CRYSTALLINE SILICA (QUARTZ)	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

Non-controlled

Component	NPRI
ZINC	Part 1, Group 1 Substance
XYLENE	Part 1, Group 1 Substance; Part 5 Substance
ETHYL BENZENE	Part 1, Group 1 Substance
DIPHENYLMETHANE DIISOCYANATE (MDI) REACTIVE MONOMER	Part 1, Group 1 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.

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End of MSDS