



1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

PRODUCT IDENTIFIER:	TOYOCAT-TR20
MANUFACTURER:	TOSOH SPECIALTY CHEMICALS USA, Inc.
ADDRESS:	1720 Windward Concourse, Suite 125 Alpharetta, Georgia 30005
PHONE:	1-770-442-9501
EMERGENCY PHONE:	CHEMTREC 1-800-424-9300 OR 1-703-527-3887
RECOMMENDED USE:	General industrial products

2. HAZARDS IDENTIFICATION

GHS CLASSIFICATION

Acute toxicity	
Oral:	Category 4
Dermal:	Category 3
Skin corrosion/irritation	Category 1B
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity – single exposure	Category 3
Specific target organ toxicity – repeat exposure	Category 2

HAZARD SYMBOL:



SIGNAL WORD:

DANGER

HAZARD STATEMENTS:

Harmful if swallowed.
Toxic in contact with skin.
Causes severe skin burns and serious eye damage.
May cause drowsiness or dizziness.
May cause damage to kidneys through prolonged or repeated exposure.

PREVENTION:

Wear protective gloves/protective clothing/eye protection/face protection.
Do not breathe dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.



2. HAZARDS IDENTIFICATION (continued)

RESPONSE: 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 control center/doctor.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
Call a poison control center/doctor if you feel unwell.
Wash contaminated clothing before reuse.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
Immediately call a poison control center/doctor.
If swallowed: Rinse mouth. Do NOT induce vomiting.
Call a poison control center/doctor if you feel unwell.

STORAGE: Store in a well-ventilated area. Keep container tightly closed.
Store locked up.

DISPOSAL: Dispose of contents/container in accordance with Federal and state regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Chemical Name</u>	<u>CAS #</u>	<u>OSHA Hazardous(Y/N)</u>	<u>Concentration (%)</u>
Pentamethyldiethylenetriamine	3030-47-5	Y	< 10
Ethylene glycol	107-21-1	Y	< 30
Quaternary ammonium salt	Confidential	Y	> 60

The exact identities of the ingredients of this product are considered confidential because they are a trade secret. The hazards associated with these ingredients are addressed in this document.

4. FIRST AID MEASURES

EYE CONTACT: Hold eyelids open and flush with a steady, gentle stream of water for at least 15 minutes. Seek immediate medical attention if irritation.

SKIN CONTACT: Remove contaminated clothing and shoes. Wash with plenty of water, for at least 15 minutes. Seek immediate medical attention. Launder contaminated clothing and shoes before re-use.



4. FIRST AID MEASURES (continued)

INGESTION:	Do not induce vomiting. If victim is conscious and alert, give 1-2 glasses of water to drink. Do not give anything by mouth to an unconscious person. Seek immediate medical attention. Do not leave victim unattended.
INHALATION:	If respiratory irritation or distress occurs, remove victim to fresh air. Seek immediate medical attention.
NOTES TO PHYSICIAN:	All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred. Treat symptomatically. No specific antidote available.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA:	Water spray, fog, dry chemical, foam, CO ₂
UNUSUAL FIRE AND EXPLOSION HAZARDS:	Closed containers may rupture due to buildup of pressure when exposed to extreme heat.
SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS:	Firefighters should wear NIOSH/MSHA-approved self-contained breathing apparatus and full protective clothing. Cool containers exposed to fire with water.
HAZARDOUS DECOMPOSITION MATERIALS UNDER FIRE CONDITIONS:	Oxides of carbon, oxides of nitrogen, ammonia.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:	Wear appropriate protective gear for the situation. (See Personal Protection Information in Section 8).
ENVIRONMENTAL PRECAUTIONS:	Do not flush to drain. Spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.
METHOD FOR CLEAN UP:	Extinguish or remove all sources of ignition. Absorb with an inert absorbent, sweep up and place in an appropriate closed container. Clean up residual material by washing area with water. Collect washings for disposal. Spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.



7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING: Handle material with suitable protection (See Section 8). Handle with adequate ventilation. Avoid breathing vapors. Avoid contact with eyes, skin and clothing.

VENTILATION: General area dilution/exhaust ventilation.

CONDITIONS FOR SAFE STORAGE: Store upright in a cool, dry, well ventilated area out of direct sunlight. Keep away from heat, open flames and ignition sources. Keep container tightly closed. Do not reuse container.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING MEASURES: Set up hand-wash station and eyewash station near work area.
General area dilution/exhaust ventilation.

EXPOSURE LIMITS: Ethylene glycol – 100 mg/M³ - ACGIH ceiling

PERSONAL PROTECTION MEASURES:

Respiratory protection: When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with regulatory standards and/or industrial recommendations. Self-contained or supplied-air respiratory equipment is recommended.

Eye protection: Safety glasses with side shields, goggles or face shield are recommended.

Skin protection: Skin contact should be minimized through the use of chemical-resistant gloves and boots, and suitable protective clothing.

The following general measures should be taken when working or handling this material:

- 1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored.
- 2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.
- 3) Wash exposed skin promptly to remove accidental splashes of contact with this material.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE:	Liquid
COLOR:	Yellow
ODOR:	Ammonia-like
pH:	11.7 (@10% aqueous)
MELTING POINT:	No data available



9. PHYSICAL AND CHEMICAL PROPERTIES (continued)

BOILING POINT:	217F (103C)
FLASH POINT:	167F (75C)
AUTOIGNITION POINT:	No data available
EXPLOSIVE LIMITS(Lower):	No data available
EXPLOSIVE LIMITS(Upper):	No data available
VAPOR PRESSURE:	No data available
VAPOR DENSITY:	No data available
EVAPORATION RATE:	No data available
RELATIVE DENSITY:	1.05
SOLUBILITY IN WATER:	Soluble
PARTITION COEFFICIENT:	No data available
DECOMPOSITION TEMPERATURE:	No data available

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY:	This material is stable under normal handling and storage conditions described in Section 7.
CONDITIONS TO AVOID:	Heat, open flame, sparks, direct sunlight.
INCOMPATIBLE MATERIALS:	Strong oxidizing agents, strong acids, copper, zinc, aluminum and their alloys.
HAZARDOUS DECOMPOSITION PRODUCTS:	Oxides of carbon, oxides of nitrogen, ammonia.
HAZARDOUS POLYMERIZATION:	Not applicable

11. TOXICOLOGICAL INFORMATION

EYE CORROSION/IRRITATION:	Corrosive, rabbit. (Data for Pentamethyldiethylenetriamine)
SKIN CORROSION/IRRITATION:	Corrosive, rabbit. (Data for Pentamethyldiethylenetriamine)
ACUTE TOXICITY:	
ACUTE ORAL TOXICITY:	LD ₅₀ = 1600 µl/kg, rat.
ACUTE DERMAL TOXICITY:	LD ₅₀ = 200-1000 mg/kg, rabbit.
ACUTE INHALATION TOXICITY:	LC ₅₀ = 290 mg/L, rat (6hr, aerosol). (All data for Pentamethyldiethylenetriamine)
SKIN SENSITIZATION	Negative sensitizer (guinea pig) (Data for Pentamethyldiethylenetriamine).
GENETIC TOXICITY	Negative in the Ames test and positive in the Chromosome Aberration test (Data for the quaternary amine salt).



11. TOXICOLOGICAL INFORMATION (continued)

- CARCINOGENICITY:** This product does not contain any substances that are considered by OSHA, NTP, IARC or ACGIH to be "probable" or "suspected" human carcinogens.
- REPRODUCTIVE TOXICITY:** In a reproductive/developmental toxicity study in the rat, the NOAEL (no-observed-adverse-effect level) for Pentamethyldiethylenetriamine was 300 mg/kg/day for reproduction. The NOAEL was 100 mg/kg/day for development. The value was established mainly on the basis of changes in post-implantation and post-natal development of pups. The increase post-implantation losses may have been influenced by maternal toxicity. Reproductive studies with ethylene glycol show that in repeated dose toxicity studies, no evidence of an adverse impact on reproductive organs was observed. In special studies, including a three generation study in rats and continuous breeding protocols in mice, evidence of reproductive effects have been restricted to mice (but not rabbits or rats) exposed to doses considerably higher than those associated with developmental effects in this species or renal effects in rats
- STOT-SINGLE EXPOSURE:** Ethylene glycol may cause central nervous system depression and drowsiness.
- STOT-REPEATED EXPOSURE:** The value of NOAEL (No Observed Adverse Effect Level) for repeated dose toxicity was established as 30 mg/kg/day. The value was established mainly on the basis of changes in biochemical parameters related to liver function and histopathology of the liver. The NOAEL for ethylene glycol was determined to be 150 mg/kg/day and appears to be a threshold dose below which no renal toxicity occurs. In a 28-day repeated dose oral toxicity study in rats, animals dosed with the quaternary ammonium salt survived up to a dose of 1000 mg/kg/day (highest dose tested), with liver and kidney effects occurring at the highest-dose level. The NOEL (No Observed Effect Level) was 200 mg/kg/day.

12. ECOLOGICAL INFORMATION

- ECOTOXICITY:**
- 96hr LC₅₀ = 157 mg/L (rainbow trout)
 - 48hr EC₅₀ = 55 mg/L (daphnia magna)
 - 72hr EC₅₀ = 78 mg/L (algae, growth rate)
- (All data for Pentamethyldiethylenetriamine)



12. ECOLOGICAL INFORMATION (continued)

PERSISTENCE AND DEGRADABILITY: Not biodegradable.

MOBILITY IN SOIL: No data available

13. DISPOSAL CONSIDERATION (INCLUDING CONTAINER)

RESIDUAL WASTE: Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Please be advised that state and local requirements for waste disposal may be more restrictive or otherwise different from Federal laws and regulations. Consult state and local regulations regarding the proper disposal of this material.

CONTAMINATED VESSELS AND CONTAINERS: Rinse containers before disposal. Do not allow rinsate to enter the water systems.
EPA Hazardous Waste = C (Corrosive)

14. TRANSPORTATION INFORMATION

PROPER SHIPPING NAME: AMINES, LIQUID, CORROSIVE, N.O.S.
(contains quaternary ammonium salt)

UN NUMBER: UN2735

UN CLASS or DIVISION: 8

UN PACKING GROUP: II

LABELS: Corrosive

EMERGENCY GUIDE#: 153

15. REGULATORY INFORMATION

Inventory Status: US (TSCA): Exempt
Canada (DSL): No
EU (REACH): No
Australia (AICS): No
Japan (METI): No
Korea (KECL): No

Where: Yes = all ingredients are listed on the inventory, Exempt = All ingredients are either on the inventory or exempt from the requirements of listing, No = Not determined, or one or more ingredients are not on the inventory and are not exempt from listing

SARA Title III Hazard Classes: Fire Hazard: Yes
Reactive Hazard: No
Release of Pressure: No
Acute Health Hazard: Yes
Chronic Health Hazard: Yes



15. REGULATORY INFORMATION (continued)

SARA Extremely Hazardous Substances/CERCLA Hazardous Substances: Ethylene glycol (107-21-1) (<30%), TPQ=5000 pounds, 2270 kg

California Proposition 65: This product does not contain any components that are regulated under Proposition 65.

16. OTHER INFORMATION INCLUDING INFORMATION ON PREPARATION AND REVISION OF THIS MSDS

National Fire Protection Association (“NFPA”) Hazard Ratings:

Health: 3 (Severe)
Flammability: 1 (Slight)
Reactivity: 0 (Minimal)

National Paint and Coatings Hazardous Materials Identification System (“HMIS”) Hazard Ratings:

Health: 3 (Severe)
Flammability: 1 (Slight)
Physical Hazard: 0 (Minimal)

16. OTHER INFORMATION INCLUDING INFORMATION ON PREPARATION AND REVISION OF THIS MSDS (continued)

HISTORY:

Date previous SDS:	December 17, 2009
Date of issue:	April 19, 2015
Reasons for Revision:	GHS Format

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END OF SAFETY DATA SHEET