

### SECTION 1: Identification

#### 1.1. Identification

Product form : Mixture  
Product name : Tyfo® TC, Component B

#### 1.2. Recommended use and restrictions on use

Use of the substance/mixture : For professional use only

#### 1.3. Supplier

FYFE CO, LLC  
4995 Murphy Canyon Road  
Ste. 110  
San Diego, CA 92123 - United States  
T (858) 642-0694  
[www.aegion.com](http://www.aegion.com)

#### 1.4. Emergency telephone number

Emergency number : (800) 424-9300 or (703) 527-3887

### SECTION 2: Hazard(s) identification

#### 2.1. Classification of the substance or mixture

##### GHS-US classification

Acute toxicity (oral) Category 4	H302	Harmful if swallowed
Acute toxicity (dermal) Category 4	H312	Harmful in contact with skin
Skin corrosion/irritation Category 1A	H314	Causes severe skin burns and eye damage
Respiratory sensitization, Category 1	H334	May cause an allergy or asthma symptoms or breathing difficulties if inhaled
Skin sensitization, Category 1	H317	May cause an allergic skin reaction

Full text of H statements : see section 16

#### 2.2. GHS Label elements, including precautionary statements

##### GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H302+H312 - Harmful if swallowed or in contact with skin  
H314 - Causes severe skin burns and eye damage  
H317 - May cause an allergic skin reaction  
H334 - May cause an allergy or asthma symptoms or breathing difficulties if inhaled

Precautionary statements (GHS-US) :

P260 - Do not breathe vapors.  
P261 - Avoid breathing vapors.  
P264 - Wash thoroughly after handling.  
P270 - Do not eat, drink or smoke when using this product.  
P272 - Contaminated work clothing must not be allowed out of the workplace  
P280 - Wear protective gloves, eye protection, protective clothing.  
P284 - [In case of inadequate ventilation] wear If inhaled: Remove person to fresh air and keep comfortable for breathing, IF INHALED: Call a POISON CENTER or doctor/physician if you feel unwell..  
P301+P312 - If swallowed: Call a POISON CENTER if you feel unwell  
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting  
P302+P352 - If on skin: Wash with plenty of soap and water  
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower  
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing  
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact

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lenses, if present and easy to do. Continue rinsing  
P310 - Immediately call a POISON CENTER  
P312 - Call a POISON CENTER if you feel unwell  
P330 - Rinse mouth.  
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.  
P342+P311 - If experiencing respiratory symptoms: Call a POISON CENTER  
P362+P364 - Take off contaminated clothing and wash it before reuse.  
P363 - Wash contaminated clothing before reuse.  
P405 - Store locked up.  
P501 - Dispose of contents/container in accordance with local, regional, national and/or international regulation

### 2.3. Other hazards which do not result in classification

No additional information available

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

Name	Product identifier	%	GHS-US classification
Polyetheramine*	(CAS-No.) Trade Secret	89 - 95	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Skin Corr. 1A, H314 Aquatic Acute 3, H402 Aquatic Chronic 3, H412
Proprietary*	(CAS-No.) Trade Secret	5 - 6	Eye Dam. 1, H318 Aquatic Acute 3, H402
Catalyst*	(CAS-No.) Trade Secret	0.2 - 0.7	Skin Corr. 1A, H314 Resp. Sens. 1, H334 Skin Sens. 1, H317
Catalyst*	(CAS-No.) Trade Secret	0.1 - 0.5	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Skin Corr. 1A, H314 Skin Sens. 1, H317 Aquatic Chronic 3, H412

\*Chemical name, CAS number and/or exact concentration have been withheld as a trade secret

Full text of hazard classes and H-statements : see section 16

## SECTION 4: First-aid measures

### 4.1. Description of first aid measures

First-aid measures general : Call a physician immediately.  
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a poison center or a doctor.  
First-aid measures after skin contact : Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Call a physician immediately.  
First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.  
First-aid measures after ingestion : Rinse mouth. Do not induce vomiting. Call a physician immediately.

### 4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation : May cause an allergy or asthma symptoms or breathing difficulties if inhaled.  
Symptoms/effects after skin contact : Burns. May cause an allergic skin reaction.  
Symptoms/effects after eye contact : Serious damage to eyes.  
Symptoms/effects after ingestion : Burns.

### 4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

## SECTION 5: Fire-fighting measures

### 5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

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### 5.2. Specific hazards arising from the chemical

Reactivity : The product is non-reactive under normal conditions of use, storage and transport.

### 5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

Emergency procedures : Avoid contact with skin, eyes and clothing. Do not breathe dust/fume/gas/mist/vapors/spray.

#### 6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

### 6.2. Environmental precautions

Avoid release to the environment.

### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Take up liquid spill into absorbent material.

Other information : Dispose of materials or solid residues at an authorized site.

### 6.4. Reference to other sections

For further information refer to section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Do not get in eyes, on skin, or on clothing. Wear personal protective equipment. Do not breathe dust/fume/gas/mist/vapors/spray.

Hygiene measures : Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

### 7.2. Conditions for safe storage, including any incompatibilities

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

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Polyetheramine

Not applicable

#### Proprietary

Not applicable

#### Catalyst

ACGIH	ACGIH TWA (ppm)	0.03 ppm (Piperazine; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value; Inhalable fraction and vapor)

#### Catalyst

Not applicable

### 8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.

Environmental exposure controls : Avoid release to the environment.

### 8.3. Individual protection measures/Personal protective equipment

#### Personal protective equipment:

Gloves. Safety glasses. Protective clothing.

#### Hand protection:

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Protective gloves

### Eye protection:

Safety glasses

### Skin and body protection:

Wear suitable protective clothing

### Respiratory protection:

Wear respiratory protection.



## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Color	: Mixture contains one or more component(s) which have the following colour(s): Light yellow Colourless Colourless to light yellow Colourless to white On exposure to air: turns dark yellow On exposure to light: turns dark yellow
Odor	: There may be no odour warning properties, odour is subjective and inadequate to warn of overexposure. Mixture contains one or more component(s) which have the following odour(s): Ammonia odour Ester smell Mild odour Smell of fish Irritating/pungent odour
Odor threshold	: No data available
pH	: <= 11.6
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: > 500 °F
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Not applicable.
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Solubility	: No data available
Log Pow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

### 10.2. Chemical stability

Stable under normal conditions.

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### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

### 10.5. Incompatible materials

No additional information available

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed. Dermal: Harmful in contact with skin.

Tyfo® TC, Component B	
ATE US (oral)	1157.8947368421 mg/kg body weight
ATE US (dermal)	1631.5789473684 mg/kg body weight
Polyetheramine	
LD50 oral rat	1100 mg/kg (Rat)
LD50 dermal rabbit	1550 mg/kg (Rabbit)
ATE US (oral)	1100 mg/kg body weight
ATE US (dermal)	1550 mg/kg body weight
Proprietary	
LD50 oral rat	8025 mg/kg body weight (Rat; Equivalent or similar to OECD 401; Experimental value)
LD50 dermal rabbit	4250 mg/kg body weight (Rabbit; Experimental value; Equivalent or similar to OECD 402)
ATE US (oral)	8025 mg/kg body weight
ATE US (dermal)	4250 mg/kg body weight
Catalyst	
LD50 oral rat	> 2000 mg/kg (Rat; Equivalent or similar to OECD 401; Experimental value; 2600 mg/kg bodyweight; Rat)
LD50 dermal rabbit	4440 mg/kg (Rabbit; Literature study; Equivalent or similar to OECD 402; 8300 mg/kg bodyweight; Rabbit; Experimental value)
ATE US (dermal)	4440 mg/kg body weight
Catalyst	
ATE US (oral)	500 mg/kg body weight
ATE US (dermal)	1100 mg/kg body weight

Skin corrosion/irritation	: Causes severe skin burns and eye damage. pH: ≤ 11.6
Serious eye damage/irritation	: Not classified pH: ≤ 11.6
Respiratory or skin sensitization	: May cause an allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity – single exposure	: Not classified
Specific target organ toxicity – repeated exposure	: Not classified
Aspiration hazard	: Not classified
Symptoms/effects after inhalation	: May cause an allergy or asthma symptoms or breathing difficulties if inhaled.
Symptoms/effects after skin contact	: Burns. May cause an allergic skin reaction.
Symptoms/effects after eye contact	: Serious damage to eyes.

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Symptoms/effects after ingestion : Burns.

### SECTION 12: Ecological information

#### 12.1. Toxicity

Ecology - general : Before neutralisation, the product may represent a danger to aquatic organisms.

Polyetheramine	
LC50 fish 1	> 100 mg/l (LC50; 96 h)
EC50 Daphnia 1	15 mg/l (EC50; 48 h)
Threshold limit algae 1	135 mg/l (EC50; 72 h)

Proprietary	
LC50 fish 1	55 mg/l (LC50; EU Method C.1; 96 h; Cyprinus carpio; Semi-static system; Fresh water; Experimental value)
EC50 Daphnia 1	< 250 mg/l (NOEC; US EPA; 48 h; Simocephalus vetulus; Static system; Fresh water; Experimental value)
LC50 fish 2	237 mg/l (LC50; 96 h; Salmo gairdneri; Static system)
EC50 Daphnia 2	324 mg/l (LC50; US EPA; 48 h; Simocephalus vetulus; Static system; Fresh water; Experimental value)
Threshold limit algae 1	119 mg/l (EC50; US EPA; 7 days; Anabaena flosaquae; Static system; Fresh water; Experimental value)
Threshold limit algae 2	250 mg/l (EbC50; 72 h; Selenastrum capricornutum)

Catalyst	
EC50 Daphnia 2	21 mg/l (EC50; EU Method C.2; 48 h; Daphnia magna; Static system; Fresh water; Experimental value)
Threshold limit algae 2	> 1000 mg/l (NOEC; OECD 201: Alga, Growth Inhibition Test; 72 h; Pseudokirchneriella subcapitata; Static system; Fresh water; Experimental value)

Catalyst	
LC50 fish 1	> 100 mg/l (LC50; OECD 203: Fish, Acute Toxicity Test; 96 h; Oncorhynchus mykiss; Semi-static system; Fresh water; Experimental value)
EC50 Daphnia 1	58 mg/l (EC50; OECD 202: Daphnia sp. Acute Immobilisation Test; 48 h; Daphnia magna; Static system)
Threshold limit algae 2	> 1000 mg/l (EC50; OECD 201: Alga, Growth Inhibition Test; 72 h; Selenastrum capricornutum; Fresh water)

#### 12.2. Persistence and degradability

Polyetheramine	
Persistence and degradability	Not readily biodegradable in water.

Proprietary	
Persistence and degradability	Not readily biodegradable in water. Hydrolysis in water. No (test)data on mobility of the substance available.

Catalyst	
Persistence and degradability	Readily biodegradable in water. No (test)data on mobility of the substance available.

Catalyst	
Persistence and degradability	Not readily biodegradable in water. Low potential for mobility in soil.
Chemical oxygen demand (COD)	0.56 g O <sub>2</sub> /g substance

#### 12.3. Bioaccumulative potential

Polyetheramine	
Bioaccumulative potential	Not bioaccumulative.

Proprietary	
Log Pow	-0.92 (Estimated value)
Bioaccumulative potential	Not bioaccumulative.

Catalyst	
BCF fish 1	< 3.9 (BCF)
Log Pow	-1.24 (Experimental value; OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method; 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

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Catalyst	
BCF fish 1	<= >0.3<=6.3,BCF; OECD 305: Bioconcentration: Flow-Through Fish Test; >4<=6 weeks; Cyprinus carpio; Flow-through system; Fresh water; Read-across
Log Pow	-1.48 (Experimental value; OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method; 20 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

### 12.4. Mobility in soil

Catalyst	
Log Koc	log Koc,4.57; Read-across; GLP

### 12.5. Other adverse effects

Effect on the global warming : No known effects from this product.  
 GWPmix comment : No known effects from this product.

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with local, state, and federal regulations.

## SECTION 14: Transport information

### Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN2735 (Polyoxypropylenediamine, Polyetheramine), 8, II  
 UN-No.(DOT) : UN2735  
 Class (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136  
 Packing group (DOT) : II - Medium Danger  
 Hazard labels (DOT) : 8 - Corrosive



DOT Packaging Non Bulk (49 CFR 173.xxx) : 202  
 DOT Packaging Bulk (49 CFR 173.xxx) : 242  
 DOT Symbols : G - Identifies PSN requiring a technical name  
 DOT Packaging Exceptions (49 CFR 173.xxx) : 154  
 DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 1 L  
 DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 30 L  
 DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.  
 DOT Vessel Stowage Other : 52 - Stow "separated from" acids  
 Other information : No supplementary information available.

### Transportation of Dangerous Goods

#### Transport by sea

Transport document description (IMDG) : UN 2735 , 8, II  
 UN-No. (IMDG) : 2735  
 Class (IMDG) : 8 - Corrosive substances  
 Packing group (IMDG) : II - substances presenting medium danger  
 Limited quantities (IMDG) : 1 L

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### Air transport

Transport document description (IATA) : UN 2735 , 8, II  
UN-No. (IATA) : 2735  
Class (IATA) : 8 - Corrosives  
Packing group (IATA) : II - Medium Danger

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### Polyetheramine

Listed on the United States TSCA (Toxic Substances Control Act) inventory

#### Proprietary

Listed on the United States TSCA (Toxic Substances Control Act) inventory

#### Catalyst

Listed on the United States TSCA (Toxic Substances Control Act) inventory

### 15.2. International regulations

#### CANADA

No additional information available

#### EU-Regulations

No additional information available

#### National regulations

No additional information available

### 15.3. US State regulations

#### Catalyst

U.S. - New Jersey - Right to Know Hazardous Substance List

## SECTION 16: Other information

Full text of H-phrases:

H302	Harmful if swallowed
H312	Harmful in contact with skin
H314	Causes severe skin burns and eye damage
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H334	May cause an allergy or asthma symptoms or breathing difficulties if inhaled
H402	Harmful to aquatic life
H412	Harmful to aquatic life with long lasting effects



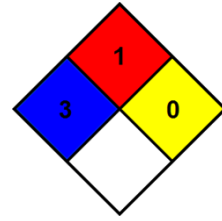
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NFPA health hazard	: 3 - Materials that, under emergency conditions, can cause serious or permanent injury.
NFPA fire hazard	: 1 - Materials that must be preheated before ignition can occur.
NFPA reactivity	: 0 - Material that in themselves are normally stable, even under fire conditions.



SDS US (GHS HazCom 2012)

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product*