

SAFETY DATA SHEET

Product Trade Name: MC MX 6-2504

Revision Date: 23-Mar-2016

Revision Number: 2

1. Identification

1.1. Product Identifier

Product Trade Name: MC MX 6-2504
Synonyms: None
Chemical Family: Blend
Internal ID Code: MC001945

1.2 Recommended use and restrictions on use

Application: Corrosion Inhibitor
Uses advised against: Consumer use

1.3 Manufacturer's Name and Contact Details

Manufacturer/Supplier

Multi-Chem Group LLC
 424 S Chadbourne St
 San Angelo, TX 76903
 Phone: 1 325 223 6200
 Emergency Phone Number: 1-866-519-4752 (US, Canada, Mexico) or 1-760-476-3962

Halliburton Energy Services
 645 - 7th Ave SW Suite 2200
 Calgary, AB
 T2P 4G8
 Canada

Prepared By: Chemical Stewardship
 Telephone: 1-281-871-6107
 e-mail: fdunexchem@halliburton.com

1.4. Emergency telephone number

Emergency Telephone Number: 1-866-519-4752 or 1-760-476-3962

2. Hazard(s) Identification

2.1 Classification in accordance with paragraph (d) of §1910.1200

Acute Oral Toxicity	Category 4 - H302
Acute toxicity - Dermal	Category 4 - H312
Acute inhalation toxicity - vapor	Category 4 - H332
Skin Corrosion / Irritation	Category 2 - H315
Serious Eye Damage/Irritation	Category 2 - H319
Skin Sensitization	Category 1 - H317

Reproductive Toxicity	Category 1B - H360
Specific Target Organ Toxicity - (Single Exposure)	Category 1 - H370
Specific Target Organ Toxicity - (Repeated Exposure)	Category 2 - H373
Acute Aquatic Toxicity	Category 2 - H401
Chronic Aquatic Toxicity	Category 3 - H412
Flammable liquids.	Category 3 - H226

2.2. Label Elements

Hazard pictograms



Signal Word

Danger

Hazard Statements

H226 - Flammable liquid and vapor
 H302 - Harmful if swallowed
 H312 - Harmful in contact with skin
 H315 - Causes skin irritation
 H317 - May cause an allergic skin reaction
 H319 - Causes serious eye irritation
 H332 - Harmful if inhaled
 H360 - May damage fertility or the unborn child
 H370 - Causes damage to organs
 H373 - May cause damage to organs through prolonged or repeated exposure

Precautionary Statements

Prevention

P201 - Obtain special instructions before use
 P202 - Do not handle until all safety precautions have been read and understood
 P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
 P233 - Keep container tightly closed
 P240 - Ground/Bond container and receiving equipment
 P241 - Use explosion-proof electrical/ventilating/lighting/equipment
 P242 - Use only non-sparking tools
 P243 - Take precautionary measures against static discharge
 P260 - Do not breathe dust/fume/gas/mist/vapors/spray
 P264 - Wash face, hands and any exposed skin thoroughly after handling
 P270 - Do not eat, drink or smoke when using this product
 P271 - Use only outdoors or in a well-ventilated area
 P272 - Contaminated work clothing should not be allowed out of the workplace
 P273 - Avoid release to the environment

Response

P280 - Wear protective gloves/protective clothing/eye protection/face protection
 P301+ P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
 P330 - Rinse mouth
 P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
 P332 + P313 - If skin irritation occurs: Get medical advice/attention

Storage**Disposal**

P362 - Take off contaminated clothing and wash before reuse
 P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing
 P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 P337 + P313 - If eye irritation persists: Get medical advice/attention
 P308 + P313 - IF exposed or concerned: Get medical advice/attention
 P370 + P378 - In case of fire: Use CO2, dry chemical, or foam
 P403 + P235 - Store in a well-ventilated place. Keep cool
 P405 - Store locked up
 P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

2.3 Hazards not otherwise classified

None known

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - US
Methanol	67-56-1	30 - 60%	Acute Tox. 3 (H301) Acute Tox. 3 (H311) Acute Tox. 3 (H331) Repr. 1B (H360) STOT SE 1 (H370) Flam. Liq. 2 (H225)
Isopropanol	67-63-0	10 - 30%	Eye Irrit. 2 (H319) STOT SE 3 (H336) Flam. Liq. 2 (H225)
Complex Amine Compounds	Proprietary	1 - 5%	Acute Tox. 4 (H302) Acute Tox. 3 (H311) Acute Tox. 3 (H331) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Skin Sens. 1 (H317) Aquatic Acute 2 (H401) Flam. Liq. 4 (H227)
Modified Tall Oil	Proprietary	1 - 5%	Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) STOT SE 3 (H335) Aquatic Acute 1 (H400)
Complex Amine Compound	Proprietary	1 - 5%	Acute Tox. 4 (H302) Eye Irrit. 2 (H319)
Complex Phosphate Ester Compounds	Proprietary	1 - 5%	Skin Corr. 1 (H314) Eye Corr. 1 (H318) STOT SE 3 (H335) Aquatic Acute 1 (H400) Aquatic Chronic 2 (H411)
Organic Alcohol	Proprietary	1 - 5%	Acute Tox. 3 (H301) Acute Tox. 2 (H310) Acute Tox. 2 (H330) Skin Irrit. 2 (H315) Eye Corr. 1 (H318) Skin Sens. 1 (H317) STOT SE 3 (H335) STOT RE 2 (H373) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410) Flam. Liq. 4 (H227)
Undefined quinolines, indoles, pyrroles and pyrimidines	Proprietary	0.1 - 1%	Acute Tox. 3 (H301) Acute Tox. 3 (H311)

			Eye Corr. 1 (H318) Skin Sens. 1 (H317) Muta. 2 (H341) Carc. 1B (H350) Aquatic Acute 3 (H402) Aquatic Chronic 2 (H411) Flam. Liq. 3 (H226)
Triethylenetetraamine	112-24-3	0.1 - 1%	Acute Tox. 3 (H311) Skin Corr. 1B (H314) Eye Corr. 1 (H318) Skin Sens. 1 (H317) STOT SE 3 (H335) Aquatic Acute 2 (H401) Aquatic Chronic 2 (H411)
Diethylenetriamine	111-40-0	0.1 - 1%	Acute Tox. 4 (H302) Acute Tox. 4 (H312) Acute Tox. 2 (H330) Skin Corr. 1B (H314) Eye Corr. 1 (H318) Skin Sens. 1 (H317) STOT SE 2 (H371) STOT SE 3 (H335) Aquatic Acute 3 (H402)

The specific chemical identity of the composition has been withheld as proprietary. The exact percentage (concentration) of the composition has been withheld as proprietary.

4. First-Aid Measures

4.1. Description of first aid measures

Inhalation	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Seek immediate medical attention/advice.
Eyes	Immediately flush eyes with large amounts of water for at least 15 minutes. Get immediate medical attention.
Skin	In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention.
Ingestion	Following ingestion, onset of symptoms may be delayed by 12 to 24 hours. Admission to hospital should be the first priority even if symptoms are absent. Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Obtain immediate medical attention.

4.2 Most important symptoms/effects, acute and delayed

Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled. Causes skin irritation. Causes eye irritation. May cause allergic skin reaction. Potential reproductive hazard. May cause birth defects. May cause damage to internal organs. Prolonged or repeated exposure may cause damage to organs.

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician	Gastric lavage or emesis should be performed as soon as possible to minimize absorption, and is recommended within 4 hours of ingestion. Ethanol may be given intravenously to prevent build-up of toxic effects of methanol metabolites. Visual disturbances and metabolic acidosis may occur and dialysis, preferably hemodialysis may be employed to treat these complications.
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5. Fire-fighting measures

5.1. Extinguishing media

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

Do NOT spray pool fires directly with water. A solid stream of water directed into hot burning liquid can cause splattering.

5.2 Specific hazards arising from the substance or mixture

Special exposure hazards in a fire

Decomposition in fire may produce harmful gases.

5.3 Special protective equipment and precautions for fire-fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use appropriate protective equipment. Do not breathe dust/fume/gas/mist/vapors/spray. Remove sources of ignition. Take precautionary measures against static discharges All equipment used when handling the product must be grounded Avoid contact with skin, eyes and clothing. See Section 8 for additional information

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Dike far ahead of liquid spill for later disposal. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. Remove ignition sources and work with non-sparking tools.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Do not breathe dust/fume/gas/mist/vapors/spray. Ensure adequate ventilation. Use appropriate protective equipment. Remove sources of ignition. Ground and bond containers when transferring from one container to another. Avoid contact with eyes, skin, or clothing.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store in a cool well ventilated area. Keep from heat, sparks, and open flames.

8. Exposure Controls/Personal Protection

8.1 Occupational Exposure Limits

Substances	CAS Number	OSHA PEL-TWA	ACGIH TLV-TWA
Methanol	67-56-1	TWA: 200 ppm	TWA: 200 ppm STEL: 250 ppm
Isopropanol	67-63-0	TWA: 400 ppm	TWA: 200 ppm STEL: 400 ppm
Complex Amine Compounds	Proprietary	Not applicable	Not applicable
Modified Tall Oil	Proprietary	Not applicable	Not applicable
Complex Amine Compound	Proprietary	Not applicable	Not applicable
Complex Phosphate Ester Compounds	Proprietary	Not applicable	Not applicable
Organic Alcohol	Proprietary	Not applicable	Not applicable
Undefined quinolines, indoles,	Proprietary	Not applicable	Not applicable

pyrroles and pyrimidines			
Triethylenetetraamine	112-24-3	Not applicable	Not applicable
Diethylenetriamine	111-40-0	Not applicable	TWA: 1 ppm

8.2 Appropriate engineering controls

Engineering Controls Ensure adequate ventilation, especially in confined areas

8.3 Individual protection measures, such as personal protective equipment

Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional.

Hand Protection Use gloves which are suitable for the chemicals present in this product as well as other environmental factors in the workplace.

Skin Protection Wear impervious protective clothing, including boots, gloves, lab coat, apron, rain jacket, pants or coverall, as appropriate, to prevent skin contact.

Eye Protection Safety glasses with side-shields. If splashes are likely to occur, wear: Goggles, Face-shield.

Other Precautions Eyewash fountains and safety showers must be easily accessible.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Liquid	Color	Light Amber to Dark Amber Clear to Slightly Hazy
Odor: Pungent	Odor Threshold:	No information available

<u>Property</u>	<u>Values</u>
Remarks/ - Method	
pH:	4.9-5.9 (5% in 1:1 IPA:H ₂ O)
Freezing Point / Range	-28.9 °C / -20 °F
Melting Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	26.7 °C / 80 °F (SFCC)
Flammability (solid, gas)	No data available
Upper flammability limit	No data available
Lower flammability limit	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	0.8970-0.9220
Water Solubility	Soluble in 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
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%)

No data available

Liquid Density

7.47-7.68 lb/gal

10. Stability and Reactivity**10.1. Reactivity**

Not expected to be reactive.

10.2. Chemical stability

Stable

10.3. Possibility of hazardous reactions

Will Not Occur

10.4. Conditions to avoid

Keep away from heat, sparks and flame.

10.5. Incompatible materials

Strong oxidizers. Strong acids. Strong alkalis.

10.6. Hazardous decomposition products

Carbon oxides. Oxides of phosphorus. Ammonia. Hydrogen chloride.

11. Toxicological Information**11.1 Information on likely routes of exposure**

Principle Route of Exposure Eye contact. Skin contact. Inhalation. Ingestion.

11.2 Symptoms related to the physical, chemical and toxicological characteristics**Acute Toxicity****Inhalation**

May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness. Harmful if inhaled.

Eye Contact

Causes serious eye irritation.

Skin Contact

Harmful in contact with skin. Causes skin irritation. May cause an allergic skin reaction.

Ingestion

Ingestion of this product may cause blindness due to the presence of methanol. Harmful if swallowed.

Chronic Effects/Carcinogenicity May cause birth defects. Contains known or suspected reproductive toxins. May cause damage to organs through prolonged or repeated exposure.**11.3 Toxicity data****Toxicology data for the components**

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Methanol	67-56-1	300 mg/kg-bw (human) < 790 to 13,000 mg/kg (rat)	1000 mg/kg-bw (human) 17,100 mg/kg (rabbit)	10 mg/L (human, vapor, 4h)
Isopropanol	67-63-0	4396 mg/kg (Rat) 5840 mg/kg (Rat) 3600 mg/kg (Mouse)	12,800 mg/kg (Rat) 12,870 mg/kg (Rabbit) 6280 mg/kg (Rabbit)	72.6 mg/L (Rat) 4h > 10,000 mg/L (Rat) 6h
Complex Amine Compounds	Proprietary	1377 mg/kg bw (rat) (similar substance)	1000 mg/kg-bw (rabbit) (similar substance)	2.67 mg/L (rat, 4h, vapor) (similar substance)
Modified Tall Oil	Proprietary	No data available	No data available	No data available
Complex Amine Compound	Proprietary	1990 mg/kg (Rat) (similar substance)	> 5000 mg/kg (Rabbit) (similar substance)	> Saturated Vapors (Rat) 8h (similar substance)

Complex Phosphate Ester Compounds	Proprietary	> 2000 mg/kg < 5000 mg/kg (Rat) (similar substance)	No data available	No data available
Organic Alcohol	Proprietary	98 - 336 mg/kg (Rat)	112-251 mg/kg (Rabbit)	2 mg/L (Rat) 4h
Undefined quinolines, indoles, pyrroles and pyrimidines	Proprietary	262 mg/kg (rat) (similar substance)	790 mg/kg (rabbit) (similar substance)	No data available
Triethylenetetraamine	112-24-3	2500 mg/kg (Rat)	550 mg/kg (Rabbit)	> Saturated concentration (Rat) 4h
Diethylenetriamine	111-40-0	1553 mg/kg (Rat)	678 mg/kg (Rabbit)	0.07 mg/L (Rat, 4h, aerosol)

Substances	CAS Number	Skin corrosion/irritation
Methanol	67-56-1	Non-irritating to the skin (Rabbit)
Isopropanol	67-63-0	Non-irritating to the skin (Rabbit)
Complex Amine Compounds	Proprietary	Skin, rabbit: Causes moderate skin irritation. (similar substances) Irritating to skin.
Modified Tall Oil	Proprietary	May cause moderate skin irritation.
Complex Amine Compound	Proprietary	Not irritating to skin in rabbits.
Complex Phosphate Ester Compounds	Proprietary	Causes severe skin irritation with tissue destruction.
Organic Alcohol	Proprietary	Skin, rabbit: Causes moderate skin irritation.
Undefined quinolines, indoles, pyrroles and pyrimidines	Proprietary	May cause mild skin irritation. (similar substances)
Triethylenetetraamine	112-24-3	Causes severe skin irritation with tissue destruction. (Rabbit)
Diethylenetriamine	111-40-0	Corrosive to skin (Rabbit)

Substances	CAS Number	Serious eye damage/irritation
Methanol	67-56-1	Non-irritating to the eye (Rabbit)
Isopropanol	67-63-0	Causes moderate eye irritation (Rabbit)
Complex Amine Compounds	Proprietary	Causes severe eye irritation (similar substances) Causes moderate eye irritation Eye, rabbit:
Modified Tall Oil	Proprietary	May cause moderate eye irritation.
Complex Amine Compound	Proprietary	Eye, rabbit: Causes moderate eye irritation
Complex Phosphate Ester Compounds	Proprietary	Causes severe eye irritation (Rabbit) (similar substances)
Organic Alcohol	Proprietary	Eye, rabbit: Causes severe eye irritation. Will damage tissue.
Undefined quinolines, indoles, pyrroles and pyrimidines	Proprietary	Causes serious eye damage (similar substances)
Triethylenetetraamine	112-24-3	Causes severe eye irritation which may damage tissue. (Rabbit)
Diethylenetriamine	111-40-0	Corrosive to eyes (Rabbit)

Substances	CAS Number	Skin Sensitization
Methanol	67-56-1	Did not cause sensitization on laboratory animals (guinea pig)
Isopropanol	67-63-0	Did not cause sensitization on laboratory animals (guinea pig)
Complex Amine Compounds	Proprietary	May cause sensitization by skin contact (mouse) (similar substances)
Modified Tall Oil	Proprietary	No information available
Complex Amine Compound	Proprietary	Did not cause sensitization on laboratory animals (guinea pig) (similar substances)
Complex Phosphate Ester Compounds	Proprietary	Did not cause sensitization on laboratory animals (guinea pig) (similar substances)
Organic Alcohol	Proprietary	Skin sensitizer in guinea pig.
Undefined quinolines, indoles, pyrroles and pyrimidines	Proprietary	Skin sensitizer in guinea pig. (similar substances)
Triethylenetetraamine	112-24-3	Skin sensitizer in guinea pig.
Diethylenetriamine	111-40-0	Skin sensitizer in guinea pig.

Substances	CAS Number	Respiratory Sensitization
Methanol	67-56-1	No information available
Isopropanol	67-63-0	No information available
Complex Amine Compounds	Proprietary	No information available
Modified Tall Oil	Proprietary	No information available
Complex Amine Compound	Proprietary	No information available
Complex Phosphate Ester Compounds	Proprietary	No information available
Organic Alcohol	Proprietary	No information available
Undefined quinolines, indoles, pyrroles and pyrimidines	Proprietary	No information available

pyrimidines		
Triethylenetetraamine	112-24-3	No information available
Diethylenetriamine	111-40-0	No data of sufficient quality are available.

Substances	CAS Number	Mutagenic Effects
Methanol	67-56-1	The weight of evidence from available in vitro and in vivo studies indicates that this substance is not expected to be mutagenic.
Isopropanol	67-63-0	In vitro tests did not show mutagenic effects. In vivo tests did not show mutagenic effects.
Complex Amine Compounds	Proprietary	While some in vitro tests were positive and/or equivocal, in vivo results were negative. (similar substances)
Modified Tall Oil	Proprietary	No information available
Complex Amine Compound	Proprietary	In vitro tests did not show mutagenic effects. In vivo tests did not show mutagenic effects. (similar substances)
Complex Phosphate Ester Compounds	Proprietary	In vitro tests did not show mutagenic effects (similar substances)
Organic Alcohol	Proprietary	The weight of evidence from available in vitro and in vivo studies indicates that this substance is not expected to be mutagenic.
Undefined quinolines, indoles, pyrroles and pyrimidines	Proprietary	Some in vivo tests have shown mutagenic effects. Some in vitro tests have shown mutagenic effects. (similar substances)
Triethylenetetraamine	112-24-3	While some in vitro tests were positive and/or equivocal, in vivo results were negative.
Diethylenetriamine	111-40-0	In vitro tests did not show mutagenic effects. In vivo tests did not show mutagenic effects.

Substances	CAS Number	Carcinogenic Effects
Methanol	67-56-1	No data of sufficient quality are available.
Isopropanol	67-63-0	Did not show carcinogenic effects in animal experiments
Complex Amine Compounds	Proprietary	No information available
Modified Tall Oil	Proprietary	No information available
Complex Amine Compound	Proprietary	No information available
Complex Phosphate Ester Compounds	Proprietary	Did not show carcinogenic effects in animal experiments (similar substances)
Organic Alcohol	Proprietary	No information available
Undefined quinolines, indoles, pyrroles and pyrimidines	Proprietary	Available data indicate that this substance is a potential carcinogen. (similar substances)
Triethylenetetraamine	112-24-3	Did not show carcinogenic effects in animal experiments
Diethylenetriamine	111-40-0	Did not show carcinogenic effects in animal experiments

Substances	CAS Number	Reproductive toxicity
Methanol	67-56-1	Experiments have shown reproductive toxicity effects on laboratory animals
Isopropanol	67-63-0	No significant toxicity observed in animal studies at concentration requiring classification.
Complex Amine Compounds	Proprietary	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments. (similar substances)
Modified Tall Oil	Proprietary	No information available
Complex Amine Compound	Proprietary	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments. (similar substances)
Complex Phosphate Ester Compounds	Proprietary	Not a confirmed teratogen or embryotoxin. (similar substances)
Organic Alcohol	Proprietary	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.
Undefined quinolines, indoles, pyrroles and pyrimidines	Proprietary	No information available
Triethylenetetraamine	112-24-3	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.
Diethylenetriamine	111-40-0	Did not show teratogenic effects in animal experiments.

Substances	CAS Number	STOT - single exposure
Methanol	67-56-1	May cause disorder and damage to the Central Nervous System (CNS)
Isopropanol	67-63-0	May cause headache, dizziness, and other central nervous system effects.
Complex Amine Compounds	Proprietary	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)
Modified Tall Oil	Proprietary	May cause respiratory irritation.
Complex Amine Compound	Proprietary	No information available
Complex Phosphate Ester Compounds	Proprietary	May cause respiratory irritation. (similar substances)
Organic Alcohol	Proprietary	May cause respiratory irritation.

Undefined quinolines, indoles, pyrroles and pyrimidines	Proprietary	No data of sufficient quality are available.
Triethylenetetraamine	112-24-3	May cause respiratory irritation.
Diethylenetriamine	111-40-0	May cause respiratory irritation. May cause disorder and damage to the (Liver) (Kidney) Respiratory system.

Substances	CAS Number	STOT - repeated exposure
Methanol	67-56-1	No data of sufficient quality are available.
Isopropanol	67-63-0	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)
Complex Amine Compounds	Proprietary	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)
Modified Tall Oil	Proprietary	No information available
Complex Amine Compound	Proprietary	No significant toxicity observed in animal studies at concentration requiring classification.
Complex Phosphate Ester Compounds	Proprietary	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)
Organic Alcohol	Proprietary	Causes damage to organs through prolonged or repeated exposure: (Liver) Heart
Undefined quinolines, indoles, pyrroles and pyrimidines	Proprietary	No data of sufficient quality are available.
Triethylenetetraamine	112-24-3	No significant toxicity observed in animal studies at concentration requiring classification.
Diethylenetriamine	111-40-0	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	Aspiration hazard
Methanol	67-56-1	Not applicable
Isopropanol	67-63-0	Not applicable
Complex Amine Compounds	Proprietary	Not applicable
Modified Tall Oil	Proprietary	Not applicable
Complex Amine Compound	Proprietary	Not applicable
Complex Phosphate Ester Compounds	Proprietary	Not applicable
Organic Alcohol	Proprietary	Not applicable
Undefined quinolines, indoles, pyrroles and pyrimidines	Proprietary	Not applicable
Triethylenetetraamine	112-24-3	Not applicable
Diethylenetriamine	111-40-0	No information available

12. Ecological Information

12.1. Toxicity

Ecotoxicity effects

Toxic to aquatic life. Harmful to aquatic life with long lasting effects.

Product Ecotoxicity Data

No data available

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Methanol	67-56-1	EC50 (96 h) =22000 mg/L (Pseudokirchnerella subcapitata) NOEC (8 d) =8000 mg/L (Scenedesmus quadricauda)	LC50 (96 h) =15400 mg/L (Lepomis macrochirus) EC50 (200 h) =14536 mg/L (Oryzias latipes)	IC50 (3h) > 1000 mg/L (activated sludge)	EC50 (96 h) =18260 mg/L (Daphnia magna) NOEC (21 d) =208 mg/L (Daphnia magna)
Isopropanol	67-63-0	EC50 (72h) > 1000 mg/L (Desmodesmus subspicatus) EC50 (7d) 1800 mg/L (Scenedesmus quadricauda)	LC50 (96h) 9640 mg/L (Pimephales promelas) LC50 (7d) 7060 mg/L (Poecilia reticulata)	TT (16h) 1050 mg/L (Pseudomonas putida)	EC50 (48h) 13,299 mg/L (Daphnia magna) EC50 (24h) > 10,000 mg/L (Daphnia magna)
Complex Amine Compounds	Proprietary	LC50 (72 h) =61.2 mg/L (Scenedesmus capricornutum)	LC50 (96 h) =2.96 mg/L (Oncorhynchus mykiss)	No information available	EC50 (48 h) =39.6 mg/L (Daphnia magna) NOEC (21 d) =22.2 mg/L (Daphnia magna)

Modified Tall Oil	Proprietary	No information available	No information available	No information available	No information available
Complex Amine Compound	Proprietary	EC50 (72h) 141 mg/L (Skeletonea costatum) NOEC (72h) 6.25 mg/L (Desmodesmus subspicatus) (similar substances)	LC50 (96h) 1466 mg/L (Leuciscus idus) LC50 (96h) > 1000 mg/L (Cyprinodon variegatus) LC50 (96h) 1170 mg/L (Pimephales promelas) (similar substances)	EC50 (17h) 413.8 mg/L (Pseudomonas putida) (similar substance)	EC50 (48h) 230 mg/L (Daphnia magna) (similar substance)
Complex Phosphate Ester Compounds	Proprietary	EC50 (72h) 3 mg/L (Pseudokirchneriella subcapitata)	LC50 (96h) 0.323 mg/L (Pimephales promelas)	EC50 (3h) 104 mg/L (Sludge) (similar substance)	LC50 (48h) 0.148 mg/L (Daphnia magna) NOEC (21d) 0.1 mg/L (Daphnia magna)
Organic Alcohol	Proprietary	EC50 (72h) 12 mg/L (Desmodesmus subspicatus) EC50 (72h) 19 mg/L (Desmodesmus subspicatus)	LC50 (96h) 37 mg/L (Leuciscus idus) LC50 (96h) 46 mg/L (Leuciscus idus) LC50 (96h) 46-100 mg/L (Leuciscus idus) LC50 (96h) 46-100 mg/L (Carassius carassius auratis)	No information available	EC50 (48h) 0.4 mg/L (Daphnia magna) NOEC (21d) 0.0632 mg/L (Daphnia magna)
Undefined quinolines, indoles, pyrroles and pyrimidines	Proprietary	No information available	LC50 (96h) 29.9 mg/L (Poecilia reticulata) (similar substance)	No information available	EC50 (48h) 51.3 mg/L (Daphnia magna) (similar substance) NOAEC (21d) 0.8 mg/L (Daphnia magna) (similar substance)
Triethylenetetraamine	112-24-3	EC50 (72h) 2.5 mg/L (Desmodesmus subspicatus) ErC50 (96h) 3.7 mg/L (Selenastrum capricornutum)	LC50 495 mg/L (Pimephales promelas)	EC6 (25h) 500 mg/L (Pseudomonas fluorescens)	EC50 (48h) 31.1 mg/L (Daphnia magna) NOEC (21d) 1 mg/L (Daphnia magna)
Diethylenetriamine	111-40-0	EC50 (72h) 187 mg/L (Pseudokirchneriella subcapitata) (biomass)	LC50 (96h) 430 mg/L (Poecilia reticulata) NOEC (28d) > 10 mg/L (Gasterosteus aculeatus)	ErC50 (3h) 32.7 mg/L (Nitrifying bacteria)	EC50 (48h) 16 mg/L (Daphnia magna) NOEC (21d) 5.6 mg/L (Daphnia magna)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Methanol	67-56-1	(95-97% @ 20d)
Isopropanol	67-63-0	Readily biodegradable (53% @ 5d)
Complex Amine Compounds	Proprietary	Not readily biodegradable. (56.6% @ 28d)
Modified Tall Oil	Proprietary	Readily biodegradable
Complex Amine Compound	Proprietary	Readily biodegradable (96% @ 18d)
Complex Phosphate Ester Compounds	Proprietary	Not readily biodegradable (58.7% @ 28d) (similar substances)
Organic Alcohol	Proprietary	Product is not biodegradable (15-21% @ 28d)
Undefined quinolines, indoles, pyrroles and pyrimidines	Proprietary	No information available
Triethylenetetraamine	112-24-3	(0% @ 28d)
Diethylenetriamine	111-40-0	Readily biodegradable (> 96% @ 10d)

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Methanol	67-56-1	-0.77 BCF = 1.0 – 4.5 (Cyprinus carpio) BCF < 10 (Leuciscus idus melanotus)
Isopropanol	67-63-0	0.05
Complex Amine Compounds	Proprietary	2.1 - 2.52 (similar substance)
Modified Tall Oil	Proprietary	No information available
Complex Amine Compound	Proprietary	-1.16 (similar substance)
Complex Phosphate Ester Compounds	Proprietary	4.48
Organic Alcohol	Proprietary	-0.056

Undefined quinolines, indoles, pyrroles and pyrimidines	Proprietary	No information available
Triethylenetetraamine	112-24-3	-1.4
Diethylenetriamine	111-40-0	-1.58

12.4. Mobility in soil

Substances	CAS Number	Mobility
Methanol	67-56-1	No information available
Isopropanol	67-63-0	KOC = 1.5
Complex Amine Compounds	Proprietary	No information available
Modified Tall Oil	Proprietary	No information available
Complex Amine Compound	Proprietary	KOC = 0.17
Complex Phosphate Ester Compounds	Proprietary	No information available
Organic Alcohol	Proprietary	KOC = 1.325
Undefined quinolines, indoles, pyrroles and pyrimidines	Proprietary	No information available
Triethylenetetraamine	112-24-3	No information available
Diethylenetriamine	111-40-0	KOC = 2582 - 36,658

12.5 Other adverse effects

No information available

13. Disposal Considerations

13.1. Waste treatment methods

Disposal methods Disposal should be made in accordance with federal, state, and local regulations.
Contaminated Packaging Dispose of container according to national or local regulations.

14. Transport Information

US DOT

UN Number UN1993
UN proper shipping name: Flammable Liquid, N.O.S. (Contains Methanol, Isopropanol)
Transport Hazard Class(es): 3
Packing Group: III
Environmental Hazards Not applicable
NAERG: NAERG 128

Canadian TDG

UN Number Not restricted
UN proper shipping name: Not approved for transport in Canada
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards Not applicable

Not approved for transport in Canada

IMDG/IMO

UN Number UN1993
UN proper shipping name: Flammable Liquid, N.O.S. (Contains Methanol, Isopropanol)
Transport Hazard Class(es): 3
Packing Group: III
Environmental Hazards Not applicable
EMS: EmS F-E, S-E

IATA/ICAO

UN Number UN1993
UN proper shipping name: Flammable Liquid, N.O.S. (Contains Methanol, Isopropanol)

Transport Hazard Class(es): 3
 Packing Group: III
 Environmental Hazards: Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

Special Precautions for User: None

15. Regulatory Information

US Regulations

US TSCA Inventory: All components listed on inventory or are exempt.

TSCA Significant New Use Rules - S5A2

Substances	CAS Number	TSCA Significant New Use Rules - S5A2
Methanol	67-56-1	Not applicable
Isopropanol	67-63-0	Not applicable
Complex Amine Compounds	Proprietary	Not applicable
Modified Tall Oil	Proprietary	Not applicable
Complex Amine Compound	Proprietary	Not applicable
Complex Phosphate Ester Compounds	Proprietary	Not applicable
Organic Alcohol	Proprietary	Not applicable
Undefined quinolines, indoles, pyrroles and pyrimidines	Proprietary	Not applicable
Triethylenetetraamine	112-24-3	Not applicable
Diethylenetriamine	111-40-0	Not applicable

EPA SARA Title III Extremely Hazardous Substances

Substances	CAS Number	EPA SARA Title III Extremely Hazardous Substances
Methanol	67-56-1	Not applicable
Isopropanol	67-63-0	Not applicable
Complex Amine Compounds	Proprietary	Not applicable
Modified Tall Oil	Proprietary	Not applicable
Complex Amine Compound	Proprietary	Not applicable
Complex Phosphate Ester Compounds	Proprietary	Not applicable
Organic Alcohol	Proprietary	Not applicable
Undefined quinolines, indoles, pyrroles and pyrimidines	Proprietary	Not applicable
Triethylenetetraamine	112-24-3	Not applicable
Diethylenetriamine	111-40-0	Not applicable

EPA SARA (311,312) Hazard Class

Acute Health Hazard
 Chronic Health Hazard
 Fire Hazard

EPA SARA (313) Chemicals

Substances	CAS Number	Toxic Release Inventory (TRI) - Group I	Toxic Release Inventory (TRI) - Group II
Methanol	67-56-1	1.0%	Not applicable
Isopropanol	67-63-0	1.0%	Not applicable
Complex Amine Compounds	Proprietary	Not applicable	Not applicable
Modified Tall Oil	Proprietary	Not applicable	Not applicable
Complex Amine Compound	Proprietary	Not applicable	Not applicable
Complex Phosphate Ester Compounds	Proprietary	Not applicable	Not applicable
Organic Alcohol	Proprietary	Not applicable	Not applicable
Undefined quinolines, indoles, pyrroles and pyrimidines	Proprietary	Not applicable	Not applicable
Triethylenetetraamine	112-24-3	Not applicable	Not applicable
Diethylenetriamine	111-40-0	Not applicable	Not applicable

EPA CERCLA/Superfund Reportable Spill Quantity

Substances	CAS Number	CERCLA RQ
Methanol	67-56-1	5000 lb 2270 kg
Isopropanol	67-63-0	Not applicable
Complex Amine Compounds	Proprietary	Not applicable
Modified Tall Oil	Proprietary	Not applicable
Complex Amine Compound	Proprietary	Not applicable
Complex Phosphate Ester Compounds	Proprietary	Not applicable
Organic Alcohol	Proprietary	Not applicable
Undefined quinolines, indoles, pyrroles and pyrimidines	Proprietary	Not applicable
Triethylenetetraamine	112-24-3	Not applicable
Diethylenetriamine	111-40-0	Not applicable

EPA RCRA Hazardous Waste Classification

Ignitability D001

California Proposition 65 The California Proposition 65 regulations apply to this product.

MA Right-to-Know Law One or more components listed.

NJ Right-to-Know Law One or more components listed.

PA Right-to-Know Law One or more components listed.

NFPA Ratings: Health 2, Flammability 3, Reactivity 0

HMS Ratings: Health 2*, Flammability 3, Physical Hazard 0, PPE: X

Canadian Regulations

Canadian Domestic Substances List (DSL) Product contains one or more components not listed on the inventory.

16. Other information

Preparation Information

Prepared By Chemical Stewardship
Telephone: 1-281-871-6107
e-mail: fdunexchem@halliburton.com

Revision Date: 23-Mar-2016

Reason for Revision Update to Format

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key or legend to abbreviations and acronyms used in the safety data sheet

bw – body weight

CAS – Chemical Abstracts Service

EC50 – Effective Concentration 50%

ErC50 – Effective Concentration growth rate 50%

LC50 – Lethal Concentration 50%

LD50 – Lethal Dose 50%

LL50 – Lethal Loading 50%

mg/kg – milligram/kilogram

mg/L – milligram/liter
NIOSH – National Institute for Occupational Safety and Health
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PEL – Permissible Exposure Limit
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
UN – United Nations
h - hour
mg/m³ - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data

www.ChemADVISOR.com/

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This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet