

Safety Data Sheet

PRODUCT CODE: **KHF002**

Effective Date: December-2023

Version: 3.0

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or preparation:

Clay Stabilizer: KHF002

Company/undertaking identification:

OPT Chemicals Saudi Factory and Co.
Dammam 2nd Industrial City, 6th Street, 101 Intersection,
Postal code 34334, Kingdom of Saudi Arabia.
+966 56 917 2181

Emergency phone:

2. HAZARDS IDENTIFICATION

Main environmental hazards: Unknown

Main physical hazards:

Special precautions: None

Physical hazard: Dust

Main health hazards: Causes mild eye irritation

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance	Conc. [wt.%]	CAS #
Potassium Chloride	90-100	7447-4-7

4. FIRST AID MEASURES

Eye contact: Flush eyes with water for 5 minutes while holding eyelids open.

Skin contact: Wash with water. Seek medical attention if irritation occurs.

Inhalation: Remove to fresh air.

Swallowing: Rinse mouth with water.

Note: None

5. FIRE-FIGHTING MEASURES

Extinguishing media: None needed

Further information: None known

NFPA Rating: Health 1; Flammability 0; Reactivity 0; Other: None.

Combustion products: See Section 10.

6. ACCIDENTAL RELEASE MEASURES

After spillage/leakage: Scoop into containers. Flush residual with plenty of water.

See Section 8 for protective equipment information.

See Section 13 for disposal information.

7. HANDLING AND STORAGE

Special precautions: Keep material dry.

Packaging requirements: Bag with moisture barrier.

Ventilation: Provide ventilation to keep airborne concentrations below exposure limits.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection: None normally needed.

Eye protection: Chemical splash goggles.

Hand protection: Impervious gloves made of rubber.

Skin protection:	Clean, body-covering clothing.
Exposure limit guidelines (mg/m ³):	No components have established exposure limits.
Dust particles:	total = 10 mg/m ³ , respirable fraction = 5 mg/m ³ .

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Crystals
Color:	White
Odor:	None
pH value:	6.0-8.0 (2.0 wt. % water solution)
Boiling point:	1420°C
Pour point:	773°C
Flash point:	Not combustible
Flammability (explosion limits in air):	
Lower:	Not applicable
Upper:	Not applicable
Auto-flammability (auto-ignition temperature):	Not applicable
Vapor pressure:	0.13 kPa (20°C)
Relative density (specific gravity):	1.88-2.08
Bulk density (solids):	1000 kg/m ³
Solubility in water:	28% (20°C)
Viscosity:	Not applicable
Relative vapor density (air=1):	Not applicable
% Volatile:	<1

10. STABILITY AND REACTIVITY

Stability:	Stable
Conditions to avoid:	Unknown
Materials to avoid:	Not known
Hazardous polymerization:	Will not occur.
Dust explosion hazard (solids):	Not applicable
Special hazards:	None
Hazardous decomposition products:	None

11. TOXICOLOGICAL INFORMATION

Eye contact:	Mild irritating
Skin contact:	No effect
Inhalation:	No effect
Ingestion:	No effect
Carcinogenicity:	Not listed by IARC, USA NTP, or USA OSHA.
Mutagenicity:	Not known to cause heritable genetic damage.
Teratogenicity:	Not known to cause birth defects.
Target organs which may be affected:	Blood
Sensitization:	Not known to cause allergic reaction.
Other:	May cause vomiting, dizziness, nausea, diarrhea.

12. ECOLOGICAL INFORMATION

Information on product as a whole:	
Main environmental hazards:	None known
Degradability:	Not applicable
Other:	None known

13. DISPOSAL CONSIDERATIONS

Product:	Dispose of by incineration (preferred) or chemical deactivation or other acceptable method in accordance with local regulations.
Container:	Send empty bags to sanitary landfill. Render other types of containers unusable by puncturing or crushing and sanitary landfill unless prohibited by local regulations.

14. TRANSPORT INFORMATION

UN Number:	None
IMO Description:	Not regulated
Class:	
Package Group:	
Label:	
EMS:	
MFAG:	
LATA Description:	Not regulated
Class:	
Sub Risk:	
Package Group:	
Label:	
ADR Description:	Not regulated
ADR class/item:	
ADR Danger ID:	
ADR Label:	

15. REGULATORY INFORMATION

Risks:	Not required to be labelled.
Safety advice:	Exercise reasonable care and cleanliness.
Notification/restrictions status:	
EUROPEAN UNION (EU):	All components of this material are on the EINECS inventory, or the components are exempt from inventory reporting.
NORWAY:	Not determined
USA:	All components of this material are on the USA TSCA inventory, or the components are exempt from inventory reporting.

16. OTHER INFORMATION

This information and these recommendations are offered in good faith and believed to be correct as of the date hereof. Information and recommendations are supplied upon the condition that the recipients will make their own decision as to safety and suitability for their purposes. No representations or warranties, either expressed or implied, of merchant ability, fitness for a particular purpose, or of any other nature, are made with respect to the product or the information and recommendations. We make no representation as to completeness or accuracy. In no event we shall be responsible for damages of any nature whatsoever resulting from the use or reliance upon the information and recommendations.

*** END OF SDS***

Safety Data Sheet

PRODUCT CODE: **KHF002C**

Effective Date: December-2023

Version: 3.0

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or preparation:

Clay Stabilizer: KHF002C

Company/undertaking identification:

OPT Chemicals Saudi Factory and Co.
Dammam 2nd Industrial City, 6th Street, 101 Intersection,
Postal code 34334, Kingdom of Saudi Arabia.
+966 56 917 2181

Emergency phone:

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

GHS-US Classification:

Acute Toxicity. Category 3 (Oral): H301

Eye Irritation. Category 2A: H319

GHS-US Labeling:

Hazard Pictograms:



Signal Word:

Danger

Hazard Statements:

H301 - Toxic if swallowed.

H319 - Causes serious eye irritation.

Precautionary Statements:

P264 - Wash exposed skin thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product.

P280 - Wear eye protection, protective gloves.

P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P321 - Specific treatment (see reference to supplemental first aid instruction on this label) if immediate administration of antidote is required. P330 - If swallowed, rinse mouth.

P337+P313 - If eye irritation persists: Get medical advice/attention.

P405 - Store locked up.

P501 - Dispose of contents/container to comply with local, state and federal regulation.

Other Hazards:

Water Slick

Unknown acute toxicity (GHS US):

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance	Conc. [wt.%]	CAS#
(2-Hydroxyethyl) trimethylammonium Chloride	40-65	67-48-1
Water	35-60	7732-18-5

4. FIRST AID MEASURES

Eye contact:

Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult

Skin contact:	a physician, preferably an ophthalmologist.
Inhalation:	Wash with plenty of water.
Swallowing:	Move person to fresh air; if effects occur, consult a physician.
Note:	If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.
	None

5. FIRE-FIGHTING MEASURES

Extinguishing media:	Water fog, CO ₂ , dry chemical.
Further information:	Wear protective firefighting clothing and avoid breathing vapors. Use self-contained breathing apparatus in closed areas. Material is an oxidizer.
NFPA Rating:	Health 1 Flammability 1 Reactivity 0 Other None
Combustion products:	See Section 10.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:	Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.
	Keep unnecessary and unprotected personnel from entering the area.
Environmental precautions:	Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.
	Contain with dikes. Put in steel or plastic drum. Soak up residual on inert absorbent (sand).

7. HANDLING AND STORAGE

Special precautions:	No special precautions required.
Packaging requirements:	Steel or high density polyethylene (HDPE) container.
Ventilation:	No special requirements.
Conditions for safe storage:	Avoid temperatures above 40°C.
	Keep container tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection:	None normally needed.
Eye protection:	Chemical splash goggles.
Hand protection:	Impervious gloves made of rubber.
Skin protection:	Chemical resistant apron.
Exposure limit guidelines (mg/m ³):	No components have established exposure limits.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Liquid
Color:	Colorless
Odor:	No
pH value:	6.5-8.0
Boiling point:	Not determined
Pour point:	Not determined
Flash point:	> 93°C
Method:	Pensky-Martens cc
Flammability (explosion limits in air):	

Lower:	Not determined
Upper:	Not determined
Auto-flammability (auto-ignition temperature):	Not determined
Vapor pressure:	Not determined
Relative density (specific gravity):	1.02-1.07
Viscosity:	3 mPa•s (20°C)
Relative vapor density (air=1):	Not determined
% Volatile:	50

10. STABILITY AND REACTIVITY

Stability:	Stable
Conditions to avoid:	Keep away from open flames, hot surfaces and sources of ignition.
Materials to avoid:	Strong Acid, Strong Bases, Oxidizers.
Hazardous polymerization:	Will not occur.
Dust explosion hazard (solids):	Not applicable
Special hazards:	None
Hazardous decomposition products:	Decomposition products depend upon temperature, air supply and the presence of other materials. Toxic flammable gases can be released during decomposition. If heated strongly or burned, Carbon monoxide, Carbon dioxide, Hydrogen chloride, Nitrogen oxides are released.

11. TOXICOLOGICAL INFORMATION

Eye contact:	Sever Irritant. Cause pain and redness. Prolonged or repeated contact may cause mild burn.
Skin contact:	Irritant; may cause pain, redness, dermatitis.
Inhalation:	Mildly irritating
Ingestion:	Mildly Irritating; Toxic; can cause illness or death. LD50 (rats) = 3,400 mg/kg.
Carcinogenicity:	Not listed by IARC, USA NTP, or USA OSHA.
Mutagenicity:	Not known to cause heritable genetic damage.
Teratogenicity:	Not known to cause birth defects.
Target organs which may be affected:	Not known
Sensitization:	May cause allergic reaction upon repeated skin Exposure.
Other:	None

12. ECOLOGICAL INFORMATION

Information on product as a whole:	
Main environmental hazards:	
Degradability:	None known
Other:	Non-toxic to microorganisms on an acute basis (LC50/EC50/EL50LL50>100mg/L in most sensitive species tested).
Marine Toxicities:	Non-toxic

13. DISPOSAL CONSIDERATIONS

Product:	Dispose of by incineration (preferred) or chemical deactivation or other acceptable method in accordance with local regulations.
Container:	Sell drum to an approved drum reconditioner or triple rinse crush and ship to sanitary landfill unless prohibited by local

regulations.

14. TRANSPORT INFORMATION

UN Number:

IMO Description:

Not regulated as a dangerous good.

Class:

Package Group:

Label:

EMS:

MFAG:

IATA Description:

IATA-DGR

Class:

Sub Risk:

Package Group:

Label:

ADR Description:

Not regulated as a dangerous good.

ADR class/item:

ADR Danger ID:

15. REGULATORY INFORMATION

OSHA Hazard:

This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

EUROPEAN UNION (EU):

This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

NORWAY:

Not regulated as a dangerous good.

USA:

Not regulated as a dangerous good.

16. OTHER INFORMATION

REGULATORY INFORMATION:

This information and these recommendations are offered in good faith and believed to be correct as of the date hereof. Information and recommendations are supplied upon the condition that the recipients will make their own decision as to safety and suitability for their purposes. No representations or warranties, either expressed or implied, of merchant ability, fitness for a particular purpose, or of any other nature, are made with respect to the product or the information and recommendations. We make no representation as to completeness or accuracy. In no event we shall be responsible for damages of any nature whatsoever resulting from the use or reliance upon the information and recommendations.

*** END OF SDS***

Safety Data Sheet

PRODUCT CODE: **KHF002L**

Effective Date: December-2023

Version: 3.0

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or preparation:

Clay Stabilizer: KHF002L

Company/undertaking identification:

OPT Chemicals Saudi Factory and Co.
Dammam 2nd Industrial City, 6th Street, 101 Intersection,
Postal code 34334, Kingdom of Saudi Arabia.
+966 56 917 2181

Emergency phone:

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

GHS-US Classification:

Acute Toxicity. Category 3 (Oral): H301

Eye Irritation. Category 2A: H319

GHS-US Labeling:

Hazard Pictograms:



Signal Word:

Danger

Hazard Statements:

H301 - Toxic if swallowed.

H319 - Causes serious eye irritation.

Precautionary Statements:

P264 - Wash exposed skin thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product.

P280 - Wear eye protection, protective gloves.

P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P321 - Specific treatment (see reference to supplemental first aid instruction on this label) if immediate administration of antidote is required. P330 - If swallowed, rinse mouth.

P337+P313 - If eye irritation persists: Get medical advice/attention.

P405 - Store locked up.

P501 - Dispose of contents/container to comply with local, state and federal regulation.

Other Hazards:

Water Slick

Unknown acute toxicity (GHS US):

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance	Conc. [wt.%]	CAS#
Organic Ammonium Chloride	45-55	
Water	45-55	7732-18-5

4. FIRST AID MEASURES

Eye contact:

Immediately flush eyes with water for 30 minutes while holding eyelids open. Seek medical attention at once.

Skin contact:

Immediately remove contaminated clothes and shoes. Wash

Inhalation:	with soap and water for 15 minutes Seek medical attention. Remove to fresh air. Seek medical attention if irritation persists or you feel unwell.
Swallowing:	If several grams are swallowed, immediate medical is required. If delayed, consider inducing vomiting with ipecac or other means. After vomiting give 2 glasses milk or water.
Note:	None

5. FIRE-FIGHTING MEASURES

Extinguishing media:	Water Fog, Alcohol Foam, CO ₂ , Dry Chemical.
Further information:	Wear protective firefighting clothing and avoid breathing vapors. Use self-contained breathing apparatus in closed areas. Material is an oxidizer.
NFPA Rating:	Health 3 Flammability 1 Reactivity 0 Other: None
Combustion products:	See Section 10.

6. ACCIDENTAL RELEASE MEASURES

After spillage/leakage:	Contain with dikes. Put in steel or plastic drum. Soak up residual on inert absorbent (sand).
See Section 8 for protective equipment information.	
See Section 13 for disposal information.	

7. HANDLING AND STORAGE

Special precautions:	No special precautions required.
Packaging requirements:	Steel or high density polyethylene (HDPE) container.
Ventilation:	No special requirements.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection:	None normally needed.
Eye protection:	Chemical splash goggles.
Hand protection:	Impervious gloves made of rubber.
Skin protection:	Chemical resistant apron.
Exposure limit guidelines (mg/m ³):	No components have established exposure limits.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Liquid
Color:	Colorless
Odor:	No
pH value:	7.0-8.0
Boiling point:	Not determined
Pour point:	Not determined
Flash point:	> 93°C
Method:	Pensky-Martens cc
Flammability (explosion limits in air):	
Lower:	Not determined
Upper:	Not determined
Auto-flammability (auto-ignition temperature):	Not determined
Vapor pressure:	Not determined
Relative density (specific gravity):	1.08-1.13
Bulk density (solids):	Not applicable

Solubility in water:	Soluble
Viscosity:	6 mPa•s (20°C)
Relative vapor density (air=1):	Not determined
% Volatile:	50

10. STABILITY AND REACTIVITY

Stability:	Stable
Conditions to avoid:	Unknown
Materials to avoid:	Oxidizers
Hazardous polymerization:	Will not occur.
Dust explosion hazard (solids):	Not applicable
Special hazards:	None
Hazardous decomposition products:	If heated strongly or burned, oxides of carbon and nitrogen, ammonia, chlorine oxides, hydrogen chloride and organic fumes are released.

11. TOXICOLOGICAL INFORMATION

Eye contact:	Sever Irritant. Cause pain and redness. Prolonged or repeated contact may cause mild burn.
Skin contact:	Irritant; may cause pain, redness, dermatitis.
Inhalation:	Mildly irritating.
Ingestion:	Mildly Irritating; Toxic; can cause illness or death. LD50 (rats) = 220mg/kg
Carcinogenicity:	Not listed by IARC, USA NTP, or USA OSHA.
Mutagenicity:	Not known to cause heritable genetic damage.
Teratogenicity:	Not known to cause birth defects.
Target organs which may be affected:	None known
Sensitization:	May cause allergic reaction upon repeated skin exposure.
Other:	None

12. ECOLOGICAL INFORMATION

Information on product as a whole:	
Main environmental hazards:	
Degradability:	None known
Other:	Toxic to microorganisms
Marine Toxicities:	None known

13. DISPOSAL CONSIDERATIONS

Product:	Dispose of by incineration (preferred) or chemical deactivation or other acceptable method in accordance with local regulations.
Container:	Sell drum to an approved drum reconditioner or triple rinse crush and ship to sanitary landfill unless prohibited by local regulations.

14. TRANSPORT INFORMATION

UN Number:	UN 2810
IMO Description:	Toxic liquid, organic n.o.s. (contains tetramethylammonium chloride).
Class:	6.1
Package Group:	III
Label:	Toxic 6

EMS:	6.1-02
MFAG:	
LATA Description:	Toxic liquid, organic n.o.s. (contains tetramethylammonium chloride).
Class:	6.1
Sub Risk:	
Package Group:	III
Label:	Toxic 6
ADR Description:	Toxic liquid, organic n.o.s. (contains tetramethylammonium chloride).
ADR class/item:	5.1, 18c
ADR Danger ID:	60
ADR Label:	Toxic 6

15. REGULATORY INFORMATION

Symbols:



Signal Word:

Warning

Risks:

Toxic if swallowed.

Safety advice:

S45 In case of accident or if you feel unwell. seek medical advice immediately (show the label where possible) with plenty of water and seek medical advice.

Notification/restrictions status:

EUROPEAN UNION (EU):

All components of this material are on the EINECS inventory, or the components are exempt from Inventory reporting.

NORWAY:

Not determined

USA:

All components of this material are on the USA inventory, or the components are exempt from inventory reporting.

16. OTHER INFORMATION

REGULATORY INFORMATION

This information and these recommendations are offered in good faith and believed to be correct as of the date hereof. Information and recommendations are supplied upon the condition that the recipients will make their own decision as to safety and suitability for their purposes. No representations or warranties, either expressed or implied, of merchant ability, fitness for a particular purpose, or of any other nature, are made with respect to the product or the information and recommendations. We make no representation as to completeness or accuracy. In no event we shall be responsible for damages of any nature whatsoever resulting from the use or reliance upon the information and recommendations.

*** END OF SDS***

Safety Data Sheet

PRODUCT CODE: **KHF003**

Effective Date: December-2023

Version: 3.0

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or preparation:

Biocide: KHF003

Company/undertaking identification:

OPT Chemicals Saudi Factory and Co.
Dammam 2nd Industrial City, 6th Street, 101 Intersection,
Postal code 34334, Kingdom of Saudi Arabia.
+966 56 917 2181

Emergency phone:

2. HAZARDS IDENTIFICATION

Health Hazards:

Eye contact:

Corneal damage or blindness

Skin contact:

Inflammation and blistering

Inhalation:

Irritation to gastro-intestinal or respiratory tract.

Over-exposure:

lung damage, choking, unconsciousness or death.

Environmental or Potential Chronic Hazards:

CARCINOGENIC EFFECTS:

Not available

MUTAGENIC EFFECTS:

Mutagenic for mammalian somatic cells. Mutagenic for bacteria.

TERATOGENIC EFFECTS:

Not available

DEVELOPMENTAL TOXICITY:

Classified Reproductive system/toxin/female and male.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance	Conc. [wt.%]	CAS #
Quaternary Ammonium Chloride	40-60	-
Water	40-60	7732-18-5

4. FIRST AID MEASURES

Eye contact:

Remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

Skin contact:

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Inhalation:

Remove to fresh air. Seek medical attention immediately.

Swallowing:

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Notes:

None

5. FIRE-FIGHTING MEASURES

Extinguishing media:

Water spray, Fog, Foam, Dry Chemical.

Further information:

Fine dust dispersed in air in sufficient concentrations, and in the presences of an ignition source is a potential dust explosion hazard.

NFPA Rating:

Health 3 Flammability 1 Reactivity 0 Other: None

Combustion products:

Not available

6. ACCIDENTAL RELEASE MEASURES

After spillage/leakage:

Small Spill: Use appropriate tools to put the spilled solid in waste disposal container.

Large Spill: Corrosive solid. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources.

See Section 8 for protective equipment information.

See Section 13 for disposal information.

7. HANDLING AND STORAGE

Special precautions:

Keep away from heat, sparks, and flame. Store out of direct sunlight in well ventilated area. Keep container closed when not in use. Use with adequate ventilation. Do not cut or weld on container.

Ventilation:

Provide ventilation to keep airborne concentrations below exposure limits.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection:

Use respirator with organic vapor protection.

Eye protection:

Chemical splash goggles and face shield.

Hand protection:

Impervious gloves.

Skin protection:

Chemical resistant suit. Chemical resistant boots.

Exposure limit guidelines (mg/m³):

Not established.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:

Liquid

Color:

Colorless to yellowish

Odor:

Aromatic

Boiling point:

Not available

Melting point:

Decompose at 140°C

pH value:

7.0-8.0

Vapor pressure:

Not available

Relative density (specific gravity):

0.95-1.00

Bulk density (solids):

Not available

Solubility in water:

Soluble 20°C

Relative vapor density (air=1):

Not available

% Volatile:

Not available

10. STABILITY AND REACTIVITY

Stability:

Stable

Conditions to avoid:

Excess heat, dust generation, moisture, incompatible materials.

Materials to avoid:

Oxidizers

Hazardous polymerization:

Will not occur.

Dust explosion hazard (solids):

Not applicable

Special hazards:

None

11. TOXICOLOGICAL INFORMATION

Eye contact:

Corrosive. Rapidly causes pain, burns, corneal injury. May cause permanent damage and blindness.

Skin contact:	Corrosive; rapidly causes pain, burns, redness, swelling and damage to tissue.
Inhalation:	Irritant; may cause pain and coughing.
Ingestion:	Corrosive. causes pain and severe burns to mouth, throat and stomach. Harmful if swallowed; large amounts may cause illness. Acute oral toxicity (LD50): 240 mg/kg [Rat].
Carcinogenicity:	Not listed
Mutagenicity:	May cause heritable genetic damage.
Teratogenicity:	May cause adverse reproductive effects (fetotoxicity, fertility (female)).
Target organs which may be affected:	Bladder, Blood, Liver
Sensitization:	May cause allergic reaction.
Other:	None

12. ECOLOGICAL INFORMATION

Information on product as a whole:	
Main environmental hazards:	Toxic to aquatic organisms.
Degradability:	Not determined
Other:	None known

13. DISPOSAL CONSIDERATIONS

Product:	Dispose of by incineration (preferred) or solidification or other acceptable method in accordance with local regulations.
Container:	Must be disposed of in accordance with federal, state and local environmental control regulations.

14. TRANSPORT INFORMATION

DOT Classification:	Class 8: Corrosive material.
Identification:	Corrosive Solid, Acid, Organic, UN 1760 PG: II.
Special Provisions for Transport:	Not available

15. REGULATORY INFORMATION

Risks:	R21/22 - Harmful in contact with skin and if swallowed. R34 - Causes burns. R41 - Risk of serious damage to eyes. R50 - Very toxic to aquatic organisms.
Safety advice:	S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S28 - After contact with skin, wash immediately with plenty of soap and water. S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S61 - Avoid release to the environment. Refer to special instructions/Safety data sheets.
Notification/restrictions status:	
USA:	All components of this material are on the USA TSCA inventory, or the components are exempt from inventory reporting.
OSHA:	Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
WHMIS (Canada):	CLASS D-1B: Material causing immediate and serious toxic

effects (TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC). CLASS E: Corrosive solid.

16. OTHER INFORMATION

REGULATORY INFORMATION

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*** END OF SDS***

Safety Data Sheet

PRODUCT CODE: **KHF003G**

Effective Date: December-2023

Version: 2.0

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or preparation:

Biocide: KHF003G

Company/undertaking identification:

OPT Chemicals Saudi Factory and Co.
Dammam 2nd Industrial City, 6th Street, 101 Intersection,
Postal code 34334, Kingdom of Saudi Arabia.
+966 56 917 2181

Emergency phone:

2. HAZARDS IDENTIFICATION

Main environmental hazards:

Unknown

Main physical hazards:

Flammable liquid

Main health hazards

Causes eye irritation. Harmful if absorbed through the skin. May cause allergic reaction upon repeated skin exposure. Irritating to mucous membranes. Harmful if swallowed. May cause Central Nervous System (CNS) depression.

Precautions:

Keep away from open flames, hot surfaces and sources of ignition. Vapors are heavier than air and may spread along floors. Vapors may form explosive mixtures with air. Do not breathe vapors or spray mist. Avoid contact with the skin and the eyes.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance	Conc. [wt.%]	CAS#
Aromatic Aldehyde	70-80	-
Propan-2-ol	15-25	67-63-0
Ether	10-20	-

4. FIRST AID MEASURES

Eye contact:

Immediately flush eyes with water for 30 minutes while holding eyelids open. Consult a physician.

Skin contact:

Take off contaminated clothing and shoes immediately. Rinse immediately with plenty of water for at least 15 minutes. Seek medical attention if irritation occurs.

Inhalation:

Move to fresh air in case of accidental inhalation of vapors. If breathing has stopped or heart has stopped, trained personnel should immediately administer artificial respiration or CPR, as required. Call a physician or Poison Control Centre immediately.

5. FIRE-FIGHTING MEASURES

Extinguishing media:

Dry chemical, CO₂, water spray or "alcohol" foam.

Further information:

Wear protective fire-fighting clothing and avoid breathing vapors. Use self-contained breathing apparatus in closed areas.

NFPA Rating:

Health 2; Flammability 3; Reactivity 0; Other: None.

6. ACCIDENTAL RELEASE MEASURES

After spillage/leakage:

Contain with dikes. Use explosion proof equipment to residual on inert absorbent (sand). recover. Remove all sources of ignition. Put in plastic drum approved for flammables.

See Section 8 for protective equipment information.

See Section 13 for disposal information.

7. HANDLING AND STORAGE

Precautions:	Keep away from open flames, hot surfaces and sources of ignition. Vapors are heavier than air and may spread along floors. Vapors may form explosive mixtures with air. Do not breathe vapors or spray mist. Avoid contact with the skin and the eyes.
Packaging requirements:	Steel or high-density polyethylene (HDPE) container approved for flammables.
Ventilation:	Cool and well-ventilated place

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection:	In case of insufficient ventilation, wear suitable respiratory equipment. Use respirator with organic vapor protection (A, brown). Use SCBA (self-contained breathing apparatus) in confined areas and for emergencies.
Eye protection:	Tightly fitting safety goggles.
Hand protection:	Impervious gloves. PVC. Nitrile.
Skin protection:	Chemical resistant apron
Exposure limit guidelines (mg/m ³):	No components have established exposure limits.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Liquid
Color:	Colorless to light yellow
Odor:	Alcohols / Aldehydes
pH value:	3.5-5.0
Boiling point:	85°C
Pour point:	18°C
Flash point:	
Method:	Setaflash CC
Flammability (explosion limits in air):	
Lower:	Not determined
Upper:	Not determined
Auto flammability (auto-ignition temperature):	Not determined
Vapor pressure:	Not determined
Relative density (specific gravity):	1.10-1.15
Bulk density (solids):	Not applicable
Solubility in water:	276 g/L (20°C)
Viscosity:	5 mPa•s (25°C)
% Volatile:	> 80

10. STABILITY AND REACTIVITY

Stability:	Stable
Conditions to avoid:	Keep away from heat and sources of ignition.
Hazardous polymerization:	None
Hazardous decomposition products:	When heated strongly or burned, oxides of carbon and harmful organic chemical fumes are released.

11. TOXICOLOGICAL INFORMATION

Eye contact:	Irritant. Causes pain and redness. Prolonged or repeated
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Skin contact:	contact may cause mild burn Irritant; may cause pain, redness, dermatitis. Harmful if absorbed through the skin; may cause illness. Prolonged skin contact may defat the skin and produce dermatitis.
Inhalation:	Harmful if inhaled; may cause illness. May cause Central Nervous System (CNS) depression. Can cause headache, narcosis.
Ingestion:	Irritant; may cause pain or discomfort to mouth, throat and stomach. May cause Central Nervous System (CNS) depression.
Carcinogenicity:	Not listed by IARC, USA NTP, or USA OSHA.
Mutagenicity:	Not known to cause heritable genetic damage.
Teratogenicity:	Not known to cause birth defects.
Target organs which may be affected:	None known
Sensitization:	Not known to cause allergic reaction.
Other:	No information

12. ECOLOGICAL INFORMATION

Information on product as a whole:	
Main environmental hazards:	Not available
Other:	None known

13. DISPOSAL CONSIDERATIONS

Product:	Treat as hazardous waste. Dispose of in accordance with local regulations. Ship via permitted waste hauler to permitted hazardous waste disposal facility for incineration (preferred) or disposal well injection of all liquids and landfilling of solids.
Container:	Dispose of in accordance with local regulations. If reusable containers are used, send them back to the product supplier, after the required rinsing.

14. TRANSPORT INFORMATION

UN Number:	UN 2920
IMO Description:	CORROSIVE LIQUID, FLAMMABLE, N.O.S.
Class:	8
Package Group:	II
Label:	Corrosive 8, Flammable Liquid 3
EMS:	F-E, S-C
MFAG:	
IATA Description:	CORROSIVE LIQUID, FLAMMABLE, N.O.S.
Class:	8
Sub Risk:	3
Package Group:	II
Label:	Corrosive 8, Flammable Liquid 3
TDG Description:	CORROSIVE LIQUID, FLAMMABLE, N.O.S.
TDG class/item:	8

15. REGULATORY INFORMATION

Safety advice:	Exercise reasonable care and cleanliness.
Notification/restrictions status:	
EUROPEAN UNION (EU):	All components of this material are on the EINECS inventory, or the components are exempt from inventory reporting.
NORWAY:	Not determined.



USA:

All components of this material are on the USA TSCA inventory, or the components are exempt from inventory reporting.

16. OTHER INFORMATION

DISCLAIMER:

This information and these recommendations are offered in good faith and believed to be correct as of the date hereof. Information and recommendations are supplied upon the condition that the recipients will make their own decision as to safety and suitability for their purposes. No representations or warranties, either expressed or implied, of merchant ability, fitness for a particular purpose, or of any other nature, are made with respect to the product or the information and recommendations. We make no representation as to completeness or accuracy. In no event we shall be responsible for damages of any nature whatsoever resulting from the use or reliance upon the information and recommendations.

*** END OF SDS***

Safety Data Sheet

PRODUCT CODE: **KHF005**

Effective Date: December-2023

Version: 3.0

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or preparation:

Stabilizer: KHF005

Company/undertaking identification:

OPT Chemicals Saudi Factory and Co.
Dammam 2nd Industrial City, 6th Street, 101 Intersection,
Postal code 34334, Kingdom of Saudi Arabia.
+966 56 917 2181

Emergency phone:

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

GHS-US Classification:

Eye irritation, Category 2B: H320

Acute toxicity, inhalation, Category 5: H333

Specific target organ toxicity, single exposure; Respiratory tract irritation: H335

GHS-US Labeling

Hazard Pictograms:



Signal Word:

Warning

Hazard Statements:

H320 - Causes eye irritation.

H333 – May be harmful if inhaled.

H335 – May cause respiratory irritation.

Precautionary Statements:

P261 – Avoid breathing dust.

P264 - Wash hands, forearms, and exposed areas thoroughly after handling.

P271 - Use only outdoors or in a well-ventilated area.

P280 - Wear eye protection, protective clothing, and protective gloves.

P304+P312 - IF INHALED: Call a POISON CENTER or doctor/physician if you feel unwell.

P304+P340 - IF INHALED: Remove victim 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. P312 - Call a POISON CENTER or doctor/physician if you feel unwell.

P337+P313 - If eye irritation persists: Get medical advice/attention.

P403+P233 – Store in a well-ventilated place. Keep container tightly closed.

P405 – Store locked up.

P501- Dispose of contents/container according to local, regional, national, and international regulations.

Other Hazards:

Water Slick

Unknown acute toxicity (GHS US):

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance	Conc. [wt.%]	CAS #
Inorganic Sodium Salt	90-100	Proprietary Product

4. FIRST AID MEASURES

Eye contact:	Rinse with water.
Skin contact:	Wash off with soap and water.
Inhalation:	Remove to fresh air.
Ingestion:	Rinse mouth. Never give anything by mouth to an unconscious person.
Notes:	None

5. FIRE-FIGHTING MEASURES

Fire hazards:	Not combustible
Flash point:	Not applicable
Flammability limits in air:	Not applicable

6. ACCIDENTAL RELEASE MEASURES

Main physical hazards:	No classified physical hazards.
Personal precautions	Ensure adequate ventilation.
Methods for cleaning up:	Sweep up and shovel into suitable containers for disposal.

7. HANDLING AND STORAGE

precautions:	Avoid dust formation.
Packaging requirements:	Paper bag (minimum 3 ply), or other industrial container designed for powders and granulated materials.
Incompatible products	Strong acids

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering measures to reduce exposure:	Ensure adequate ventilation.
Hygiene measures:	Keep airborne concentrations below exposure limits.
Eye protection:	Tightly fitting safety goggles.
Hand protection:	Cotton gloves
Exposure limit guidelines (mg/m ³):	

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Granules
Color:	White
Odor:	None
pH value:	7.5-8.5 (1.0 wt.% water solution)
Relative density (specific gravity):	1.75-1.95
Boiling point:	Decomposes >100°C
Flash point:	Not applicable
Bulk density (solids):	1000 kg/m ³
Solubility in water:	700 g/l (25°C)

10. STABILITY AND REACTIVITY

Stability:	Stable
Conditions to avoid:	None known
Incompatibility with other substances:	Strong acids

Hazardous decomposition products: None
Hazardous polymerization: Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Eye contact: May cause mechanical irritation. May be mildly irritating.
Skin contact: No effect expected
Inhalation: Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough.
Ingestion: Accidental ingestion of small amounts is not expected to cause adverse effects.
Carcinogenicity: Not known
Mutagenicity: None known to cause heritable genetic damage.
Teratogenicity: None known to cause birth defects or have a deleterious effect on a developing fetus.
Target organs which may be affected: Blood, Kidney, Liver, Nerve, Reproductive.

12. ECOLOGICAL INFORMATION

PRODUCT INFORMATION:
Persistence/Degradability: Not applicable (Inorganic)
Bioaccumulation potential: None
Aquatic toxicity: This product has no known eco-toxicological effects.

13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products: Dispose of by sanitary landfilling or other acceptable method in accordance with local regulations.
Contaminated packaging: Send empty bags to sanitary landfill. Render other types of containers unusable by puncturing or crushing and sanitary landfill unless prohibited by local regulations.

14. TRANSPORT INFORMATION

DOT:
CERCLA RQ: None
Proper shipping name: Not regulated
Label(s): None required
IMDG/IMO:
Shipping name: Not regulated
UN number: None
ICAO/IATA:
Shipping name: Not regulated
UN number: None
TDG (Canada):
Shipping name: Not regulated
PIN: None

15. REGULATORY INFORMATION

International Chemical Inventories:
Inventory - United States TSCA: This product complies with TSCA requirements.
Canada DSL Inventory List: This product complies with DSL requirements.
EC-No.: This product complies with EINECS/ELINCS requirements.
China inventory of existing chemical substances List: This product complies with China inventory requirements.

Inventory - Japan - Existing and New Chemicals list:	This product does not comply with JPENCS.
Australia (AICS):	All the constituents of this material are listed on the Australian Inventory of Chemical Substances.
U.S.A. Regulations (AICS):	
OSHA Hazard Communication Standard:	(Complies with USA OSHA 29 CFR 1910.1200 and ANSI Z 400.1).
EPA RCRA Hazardous Waste Code:	None
EPA, Sections 311 and 312 - Material Safety Data Sheet Requirements (40 CFR 370):	
Immediate (Acute) Health Hazard:	None
Delayed (Chronic) Health Hazard:	None
Fire Hazard:	None
Sudden Release or Pressure Hazard:	None
Reactive Hazard:	None
EPA, Sections 313 - List of Toxic Chemicals (40 CFR 372):	

16. OTHER INFORMATION

This information and these recommendations are offered in good faith and believed to be correct as of the date hereof. Information and recommendations are supplied upon the condition that the recipients will make their own decision as to safety and suitability for their purposes. No representations or warranties, either expressed or implied, of merchant ability, fitness for a particular purpose, or of any other nature, are made with respect to the product or the information and recommendations. We make no representation as to completeness or accuracy. In no event we shall be responsible for damages of any nature whatsoever resulting from the use or reliance upon the information and recommendations.

*** END OF SDS***

Safety Data Sheet

PRODUCT CODE: **KHF006**

Effective Date: December-2023

Version: 3.0

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or preparation:

Antifoaming Agent: KHF006

Company/undertaking identification:

OPT Chemicals Saudi Factory and Co.
Dammam 2nd Industrial City, 6th Street, 101 Intersection,
Postal code 34334, Kingdom of Saudi Arabia.
+966 56 917 2181

Emergency phone:

2. HAZARDS IDENTIFICATION

Emergency Overview:

Form: Liquid

Color: Colorless

Odor: Faint

Main environmental hazards: Unknown

Main physical hazards:

Special precautions: None

Physical hazard: None

Main health hazards: May be mildly irritating to eyes.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance	Conc. [wt.%]	CAS #
Polypropylene Glycol	90-100	25322-69-4

4. FIRST AID MEASURES

Eye contact: Flush eyes with water for 5 minutes. Get medical attention if irritation occurs.

Skin contact: Wash with water and soap.

Inhalation: Remove to fresh air.

Swallowing: Rinse mouth with water. Seek medical attention if irritation occurs.

Notes: None

5. FIRE-FIGHTING MEASURES

Extinguishing media: Water fog, alcohol foam, CO₂, dry chemical.

Further Information: Wear protective firefighting clothing and avoid breathing vapors. Use self-contained breathing apparatus in closed areas.

NFPA Rating: Health 1; Flammability 1; Reactivity 0; Other: None.

Combustion products: see Section 10.

6. ACCIDENTAL RELEASE MEASURES

After spillage/leakage: Contain with dikes. Put in steel or plastic drum. Soak up residual on inert absorbent (sand).

See Section 8 for protective equipment information.

See Section 13 for disposal information.

7. HANDLING AND STORAGE

Special precautions:	No special precautions required.
Packaging requirements:	Steel or high-density polyethylene (HDPE) container.
Ventilation:	Provide ventilation to keep airborne concentrations below exposure limits.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection:	None normally needed.
Eye protection:	Chemical splash goggles.
Hand protection:	None required
Skin protection:	Clean, body-covering clothing.
Exposure limit guidelines (mg/m ³):	No components have established exposure limits.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Liquid
Color:	Colorless
Odor:	Faint
pH value:	7.0-9.0 (10 vol.% aqueous methanol solution)
Boiling point:	Decomposes prior boiling point.
Pour point:	Not determined
Flash point:	185°C
Method:	Pensky-Martens CC
Flammability (explosion limits in air):	
Lower:	Not determined
Upper:	Not determined
Auto flammability (auto-ignition temperature):	Not determined
Vapor pressure:	Not determined
Relative density (specific gravity):	0.97-1.02
Bulk density (solids):	Not applicable
Solubility in water:	Soluble
Viscosity:	980 mPa•s (20°C)
Relative vapor density (air=1):	>1
% Volatile:	<1

10. STABILITY AND REACTIVITY

Stability:	Stable
Conditions to avoid:	Unknown
Materials to avoid:	Acids, oxidizers
Hazardous Polymerization:	Will not occur.
Dust explosion hazard (solids):	Not applicable
Special hazards:	None
Hazardous decomposition products:	When heated strongly or burned, oxides of carbon and harmful organic chemical fumes are released.

11. TOXICOLOGICAL INFORMATION

Eye contact:	Mildly irritating.
Skin contact:	No effect expected.
Inhalation:	No effect expected.
Ingestion:	No effect expected. LD50 (rats) > 15000 mg/kg.
Carcinogenicity:	Not listed by IARC, USA NTP, or USA OSHA.
Mutagenicity:	Not known to cause heritable genetic damage.

Teratogenicity:	Not known to cause birth defects.
Target organs which may be affected:	None known
Sensitization:	Not known to cause allergic reaction.
Other:	No information

12. ECOLOGICAL INFORMATION

Information on product as a whole:	
Main environmental hazards:	Not available
Degradability:	Not biodegradable. BOD = 0.15 p/p; COD = 1.94 p/p.
Other:	None known
Marine Toxicities:	
Species	Result
Skeletonema costatum:	EC50(48h) = 1.0-3.2 % of saturated solution in sea water.
Abra alba:	EC50(5d) = 59 mg/l
Acartia Tonsa:	LC50(48h) = 0.25 % of saturated solution in seawater.

13. DISPOSAL CONSIDERATIONS

Products:	Dispose of by incineration (preferred) or other acceptable method in accordance with local regulations.
Container:	Sell drum to an approved drum reconditioner or triple rinse, crush, and ship to sanitary landfill unless prohibited by local regulations.

14. TRANSPORT INFORMATION

UN Number:	None
IMO Description:	Not regulated
Class:	
Package Group:	
Label:	
EMS:	
MFAG:	
IATA Description:	Not regulated
Class:	
Sub Risk:	
Package Group:	
Label:	
ADR Description:	Not regulated
ADR class/item:	
ADR Danger ID:	

15. REGULATORY INFORMATION

Safety advice:	Exercise reasonable care and cleanliness.
Notification/restrictions status:	
EUROPEAN UNION (EU):	All components of this material are on the EINECS inventory, or the components are exempt from inventory reporting.
NORWAY:	Not determined
USA:	All components of this material are on the USA TSCA inventory, or the components are exempt from inventory reporting.

16. OTHER INFORMATION

This information and these recommendations are offered in good faith and believed to be correct as of the date hereof. Information and recommendations are supplied upon the condition that the recipients will make their own decision as to safety and suitability for their purposes. No representations or warranties, either expressed or implied, of merchant ability, fitness for a particular purpose, or of any other nature, are made with respect to the product or the information and recommendations. We make no representation as to completeness or accuracy. In no event we shall be responsible for damages of any nature whatsoever resulting from the use or reliance upon the information and recommendations.

*** END OF SDS***

Safety Data Sheet

PRODUCT CODE: **KHF007**

Effective Date: December-2023

Version: 3.0

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or preparation:

Flowback Additive: KHF007

Company/undertaking identification:

OPT Chemicals Saudi Factory and Co.
Dammam 2nd Industrial City, 6th Street, 101 Intersection,
Postal code 34334, Kingdom of Saudi Arabia.
+966 56 917 2181

Emergency phone:

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS-US Classification:

Skin irritation, Category 3: H315

Eye irritation, Category 2B: H320

Specific target organ toxicity, single exposure; H335

Respiratory tract irritation:

Specific target organ toxicity, single exposure; H336

Narcotic effects, Category 3:

GHS-US Labeling

Hazard Pictograms:



Signal Word:

Warning

Hazard Statements:

H315 – Causes skin irritation.

H3320 – Causes eye irritation.

H335 – May cause respiratory irritation.

H336 – May cause nausea and vomiting.

Precautionary Statements:

P261 – Avoid breathing dust.

P264 - Wash hands, forearms, and exposed areas thoroughly after handling.

P271 - Use only outdoors or in a well-ventilated area.

P280 - Wear eye protection, protective clothing, and protective gloves.

P302+P352 – If on skin, wash with plenty of soap and water.

P304+P340 - IF INHALED: Remove victim 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.

P312 - Call a POISON CENTER or doctor/physician if you feel unwell.

P321 – Specific treatment (see reference to supplemental first aid instruction on this label).

P332+P313 – If skin irritation occurs: Get medical advice/attention.

P337+P313 - If eye irritation persists: Get medical advice/attention.

P403+P233 – Store in a well-ventilated place. Keep container tightly closed.

P405 – Store locked up.

Other Hazards:

Unknown acute toxicity (GHS US):

P501- Dispose of contents/container according to local, regional, national, and international regulations.

No additional information available

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance	Conc. [wt.%]	CAS#
Sodium Polyoxyethylene Ether Sulfonate	5-10	24938-91-8
Polymeric Ester	50-60	-
Organic Solvent	25-35	-
Water	10-15	7732-18-5

4. FIRST AID MEASURES

Eye contact:

Flush eyes with water for 15 minutes. Get medical attention if irritation occurs.

Skin contact:

Wash with water and soap.

Inhalation:

Do not induce vomiting. Give 2 glasses of milk or rinse mouth with water. Seek medical attention if irritation occurs.

Ingestion:

Remove to fresh air. Seek medical advice.

Notes:

None

5. FIRE-FIGHTING MEASURES

Extinguishing media:

Water spray foam, CO₂, dry powder sand.

Further Information:

Fire fighters should wear gas mask, firefighting suits.

NFPA Rating:

Health 1 Flammability 1 Reactivity 0 Other: None

Combustion products:

see Section 10.

6. ACCIDENTAL RELEASE MEASURES

After spillage/leakage:

For small spill absorb with sand, vermiculite or other inert materials for large spill contain with dike.

See Section 8 for protective equipment information.

See Section 13 for disposal information.

7. HANDLING AND STORAGE

Special precautions:

Away from heat, sparks or flames. Keep in well-ventilated areas to avoid direct sunlight.

Packaging requirements:

Steel or high-density polyethylene (HDPE) Container.

Ventilation:

Provide ventilation to keep airborne concentrations below exposure limits.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection:

Normally not required.

Eye protection:

Chemical splash goggles.

Hand protection:

Impervious gloves made of rubber.

Skin protection:

Clean, body-covering clothing. Cotton gloves.

Exposure Limit Guidelines (mg/m³):

No components have established exposure limits.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:

Liquid

Color:

Light yellow

pH value:

Not available

Relative density (specific gravity):	1.00-1.05
Boiling point:	N/A
Pour point:	N/A
Flash point:	> 180°C
Solubility in water:	Soluble

10. STABILITY AND REACTIVITY

Stability:	Stable
Conditions to avoid:	Open flame
Materials to avoid:	Hazardous decomposition products.
Decomposition products:	Carbon dioxide, water.

11. TOXICOLOGICAL INFORMATION

Eye contact:	May irritate, cause redness, pain or discomfort.
Skin contact:	Irritating, cause redness, pain and dermatitis.
Inhalation:	Mildly irritating
Ingestion:	Harmful if swallow large amount.
Carcinogenicity:	Not listed by IARC, USA NTP, or USA OSHA.
Mutagenicity:	Not known to cause heritable genetic damage.
Teratogenicity:	Not known to cause birth defects.
Target organs which may be affected:	None known
Sensitization:	Not known to cause allergic reaction.
Other:	May cause dizziness, nausea or headache.

12. ECOLOGICAL INFORMATION

Information on product as a whole:	
Main environmental hazards:	Not available
Degradability:	Partially biodegradable
Other:	None known

13. DISPOSAL CONSIDERATIONS

Products:	Dispose of by incineration (preferred) or other acceptable method in accordance with local regulations.
Container:	Sell drum to an approved drum re-conditioner or crush, and ship to sanitary landfill unless prohibited by local regulations.

14. TRANSPORT INFORMATION

UN Number:	None
IMO Description:	Not regulated
Class:	
Package Group:	
Label:	
EMS:	
MFAG:	
IATA Description:	Not regulated
Class:	
Sub Risk:	
Package Group:	
Label:	
ADR Description:	Not regulated

ADR class/item:

ADR Danger ID:

ADR Label:

15. REGULATORY INFORMATION

Symbols:

Risks:

Safety advice:

Exercise reasonable care and cleanliness.

Notification/restrictions status:

EUROPEAN UNION (EU):

All components of this material are on the EINECS inventory, or the components are exempt from inventory reporting.

NORWAY:

Not determined

USA:

All components of this material are on the USA TSCA inventory, or the components are exempt from inventory reporting.

16. OTHER INFORMATION

REGULATORY INFORMATION

This information and these recommendations are offered in good faith and believed to be correct as of the date hereof. Information and recommendations are supplied upon the condition that the recipients will make their own decision as to safety and suitability for their purposes. No representations or warranties, either expressed or implied, of merchant ability, fitness for a particular purpose, or of any other nature, are made with respect to the product or the information and recommendations. We make no representation as to completeness or accuracy. In no event we shall be responsible for damages of any nature whatsoever resulting from the use or reliance upon the information and recommendations.

*** END OF SDS***

Safety Data Sheet

PRODUCT CODE: **KHF007S**

Effective Date: December-2023

Version: 3.0

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or preparation:

Flowback Additive: KHF007S

Company/undertaking identification:

OPT Chemicals Saudi Factory and Co.
Dammam 2nd Industrial City, 6th Street, 101 Intersection,
Postal code 34334, Kingdom of Saudi Arabia.
+966 56 917 2181

Emergency phone:

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

GHS-US Classification:

Skin irritation, Category 3 H315

Eye irritation, Category 2B H320

Specific target organ toxicity, single exposure; H335

Respiratory tract irritation:

Specific target organ toxicity, single exposure; H336

Narcotic effects, Category 3:

GHS-US Labeling:

Hazard Pictograms:



Signal Word:

Warning

Hazard Statements:

H315 – Causes skin irritation.

H3320 – Causes eye irritation.

H335 – May cause respiratory irritation.

H336 – May cause drowsiness or dizziness.

Precautionary Statements:

P261 – Avoid breathing dust.

P264 - Wash hands, forearms, and exposed areas thoroughly after handling.

P271 - Use only outdoors or in a well-ventilated area.

P280 - Wear eye protection, protective clothing, and protective gloves.

P302+P352 – If on skin, wash with plenty of soap
And water.

P304+P340 - IF INHALED: Remove victim 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.

P312 - Call a POISON CENTER or doctor/physician if you feel unwell.

P321 – Specific treatment (see reference to supplemental first aid instruction on this label).

P332+P313 – If skin irritation occurs: Get medical advice/attention.

P337+P313 - If eye irritation persists: Get medical advice/attention.

P403+P233 – Store in a well-ventilated place. Keep container tightly closed.

P405 – Store locked up

Other Hazards:

Unknown acute toxicity (GHS US):

P501 – Dispose of contents/container according to local, regional, national, and international regulations.

No additional information available

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance	Conc. [wt.%]	CAS#
Petroleum Sulfonate Sodium Sulfonate	30-40	
Quaternary Ammonium Salt	20-30	3529-04-2
Polyether Emulsifier	10-20	9003-11-6
Water	20-30	7732-18-5

4. FIRST AID MEASURES

Eye contact:

Flush eyes with water for 5 minutes. Get medical attention if irritation occurs.

Skin contact:

Wash with water and soap.

Inhalation:

Remove to fresh air.

Swallowing:

Do not induce vomiting. Give 2 glasses of milk or rinse mouth with water. Seek medical attention if irritation occurs.

Notes:

None

5. FIRE-FIGHTING MEASURES

Extinguishing media:

Water fog, alcohol foam, CO₂, dry chemical.

Further Information:

Vapor may travel along the ground. Avoid breathing.

NFPA Rating:

Health 1; Flammability 1; Reactivity 0; Other: None.

Combustion products:

see Section 10.

6. ACCIDENTAL RELEASE MEASURES

After spillage/leakage:

Contain with dikes. Put in steel or plastic drum. Soak up residual on inert absorbent (sand).

See Section 8 for protective equipment information.

See Section 13 for disposal information.

7. HANDLING AND STORAGE

Special precautions:

Away from heat, sparks or flames. Keep in well-ventilated areas to avoid direct sunlight.

Packaging requirements:

Steel or high-density polyethylene (HDPE) container.

Ventilation:

Provide ventilation to keep airborne concentrations below exposure limits.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection:

Normally not required.

Eye protection:

Chemical splash goggles.

Hand protection:

Impervious gloves made of rubber.

Skin protection:

Clean, body-covering clothing. Cotton gloves.

Exposure limit guidelines (mg/m³):

No components have established exposure limits.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:

Liquid

Color:

Light yellow

Odor:

Faint

pH value:	7.0-9.5
Boiling point:	80°C
Pour point:	-10°C
Flash point:	Not determined
Method:	Pensky-Martens CC
Flammability (explosion limits in air):	
Lower:	Not determined
Upper:	Not determined
Auto flammability (auto-ignition temperature):	Not determined
Vapor pressure:	Not determined
Relative density (specific gravity):	1.00-1.05
Bulk density (solids):	Not applicable
Solubility in water:	Soluble

10. STABILITY AND REACTIVITY

Stability:	Stable
Conditions to avoid:	Unknown
Materials to avoid:	Oxidizers
Hazardous Polymerization:	Will not occur.
Dust explosion hazard (solids):	Not applicable
Special hazards:	None
Hazardous decomposition products:	When heated strongly or burned, oxides of carbon and harmful organic chemical fumes are released.

11. TOXICOLOGICAL INFORMATION

Eye contact:	May irritate, cause redness, pain or discomfort.
Skin contact:	Irritating, cause redness, pain and dermatitis.
Inhalation:	Mildly irritating
Ingestion:	Harmful if swallow large amount.
Carcinogenicity:	Not listed by IARC, USA NTP, or USA OSHA.
Mutagenicity:	Not known to cause heritable genetic damage.
Teratogenicity:	Not known to cause birth defects.
Target organs which may be affected:	None known
Sensitization:	Not known to cause allergic reaction.
Other:	May cause dizziness, nausea or headache.

12. ECOLOGICAL INFORMATION

Information on product as a whole:	
Main environmental hazards:	Not available
Degradability:	Partially biodegradable
Other:	None known

13. DISPOSAL CONSIDERATIONS

Products:	Dispose of by incineration (preferred) or other acceptable method in accordance with local regulations.
Container:	Sell drum to an approved drum re-conditioner or crush, and ship to sanitary landfill unless prohibited by local regulations.

14. TRANSPORT INFORMATION

UN Number:	None
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IMO Description:	Not regulated
Class:	
Package Group:	
Label:	
EMS:	
MFAG:	
IATA Description:	Not regulated
Class:	
Sub Risk:	
Package Group:	
Label:	
ADR Description:	Not regulated
ADR class/item:	
ADR Danger ID:	

15. REGULATORY INFORMATION

Symbols:	
Risks:	
Safety advice:	Exercise reasonable care and cleanliness.
Notification/restrictions status:	
EUROPEAN UNION (EU):	All components of this material are on the EINECS inventory, or the components are exempt from inventory reporting.
NORWAY:	Not determined.
USA:	All components of this material are on the USA TSCA inventory, or the components are exempt from inventory reporting.

16. OTHER INFORMATION

This information and these recommendations are offered in good faith and believed to be correct as of the date hereof. Information and recommendations are supplied upon the condition that the recipients will make their own decision as to safety and suitability for their purposes. No representations or warranties, either expressed or implied, of merchant ability, fitness for a particular purpose, or of any other nature, are made with respect to the product or the information and recommendations. We make no representation as to completeness or accuracy. In no event we shall be responsible for damages of any nature whatsoever resulting from the use or reliance upon the information and recommendations.

*** END OF SDS***

Safety Data Sheet

PRODUCT CODE: **KHF011**

Effective Date: December-2023

Version: 3.0

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or preparation:

Low Temperature Breaker: KHF011

Company/undertaking identification:

OPT Chemicals Saudi Factory and Co.
Dammam 2nd Industrial City, 6th Street, 101 Intersection,
Postal code 34334, Kingdom of Saudi Arabia.
+966 56 917 2181

Emergency phone:

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

GHS-US Classification:

Oxidizing solids, Category 3:	H272
Acute toxicity, oral, Category 4:	H302
Eye irritation, Category 2B:	H320

GHS-US Labeling:

Hazard Pictograms:



Signal Word:

Warning

Hazard Statements:

H272 - May intensify fire; oxidizer.

H302 - Harmful if swallowed.

H320 - Causes eye irritation.

Precautionary Statements:

P210 - Keep away from heat. - No smoking.

P220 - keep away from clothing and other combustible materials.

P221 - Take any precaution to avoid mixing with combustibles.

P264 - Wash hands, forearms, and exposed areas thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product.

P280 - Wear eye protection, protective clothing, and protective gloves.

P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P312 - Call a POISON CENTER or doctor/physician if you feel unwell.

P330 - Rinse mouth.

P337+P313 - If eye irritation persists: Get medical advice/attention.

P370+P378 - In case of fire: Use appropriate media for extinction.

P501- Dispose of contents/container according to local, regional, national, and international regulations.

Other Hazards:

No additional information available.

Unknown acute toxicity (GHS US):

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance	Conc. [wt.%]	CAS#
Ammonium Persulfate	90-100	7727-54-0

4. FIRST AID MEASURES

Eye contact:	Immediately flush eye with water for 15 minutes while holding eyelids open, seek medical attention.
Skin contact:	Remove contaminated clothes and shoes. Wash thoroughly with soap and water. Seek medical attention if irritation occurs.
Inhalation:	Remove to fresh air. Seek medical attention if irritation persists or you feel unwell.
Swallowing:	If several grams are swallowed, immediate medical is required. If delayed, consider inducing vomiting with ipecac or other means. After vomiting give milk or water.
Notes:	Do not attempt to neutralize with basic or halide containing materials. Effects are related to oxidizing properties.

5. FIRE-FIGHTING MEASURES

Extinguishing media:	Water Fog, Water.
Further Information:	Wear protective firefighting clothing and avoid breathing vapors. Use self-contained breathing apparatus in closed areas. Material is an oxidizer.
NFPA Rating:	Health 1; Flammability 0; Reactivity 0; Other: None.
Combustion products:	see Section 10.

6. ACCIDENTAL RELEASE MEASURES

After spillage/leakage:	Scoop into containers. Flush residual with plenty of water. Keep away from organics and combustible materials.
See Section 8 for protective equipment information.	
See Section 13 for disposal information.	

7. HANDLING AND STORAGE

Special precautions:	Do not store, transport with or allow to contact Combustible materials, corrosives, reducing agents or dry bromates (M24, M63, B29, XE67754).
Packaging requirements:	Bag with moisture barrier.
Ventilation:	Provide ventilation to keep airborne concentrations below exposure limits.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection:	Use respirator with dust and mist protection (P2, white).
Eye protection:	Chemical splash goggles.
Hand protection:	Impervious gloves made of PVC Butyl.
Skin protection:	Clean, body-covering clothing.
Exposure limit guidelines (mg/m ³):	Components having no established limits are not listed. (NE: Not established, ND: Not determined) These numbers may be referred to as OEL, MAC, MAK, MEL, OES, REL, PEL, or TLV. TWA is the 8-hour time weighted average. STEL is the short-term exposure limit. "C" indicates the value is a maximum concentration (ceiling).

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Crystals
Color:	White
Odor:	Unpleasant
pH value:	3.0-7.0 (5.0 wt.% water solution)
Boiling point:	Decomposes
Pour point:	Decomposes at 120.1°C
Flash point:	Not combustible
Method:	Not applicable
Flammability (explosion limits in air):	
Lower:	Not applicable
Upper:	Not applicable
Auto flammability (auto-ignition temperature):	Not applicable
Vapor pressure:	Not determined
Relative density (specific gravity):	1.89-2.09
Bulk density (solids):	1000 kg/m ³
Solubility in water:	Soluble (20°C)
Viscosity:	Not applicable
Relative Vapor Density (air=1):	Not applicable
% Volatile:	0.1

10. STABILITY AND REACTIVITY

Stability:	Disintegrates slowly at room temperature and rapidly at higher temperatures, releasing oxygen.
Conditions to avoid:	Not determined
Materials to avoid:	Acids, moisture, reducing agents, organics, bases, combustible materials, dry bromates.
Hazardous Polymerization:	Will not occur.
Dust explosion hazard (solids):	Not applicable
Special hazards:	Explosive with dry bromates.
Hazardous decomposition products:	Ammonia, oxides of nitrogen Oxygen Sulfur oxides.

11. TOXICOLOGICAL INFORMATION

Eye contact:	Irritant. May cause pain, redness, discomfort.
Skin contact:	Irritant; may cause pain, redness, dermatitis.
Inhalation:	Irritant; may cause pain and coughing.
Ingestion:	Harmful if swallowed; large amounts may cause illness. LD50 (rats) = 820 mg/kg Irritant; may cause pain or discomfort to mouth, throat and stomach.
Carcinogenicity:	Not listed by IARC, USA NTP, or USA OSHA.
Mutagenicity:	Not known to cause heritable genetic damage.
Teratogenicity:	Not known to cause birth defects.

12. ECOLOGICAL INFORMATION

Information on product as a whole:	
Main environmental hazards:	None known
Degradability:	Not applicable
Other:	None known
Marine Toxicities:	
*Chaetogammarus marinus:	LC50(96h) = 56.6 mg/l
*Phaeodactylum tricornutum:	EC50(72h) = 320-1000 mg/l

*Skeletonema costatum:	EC50(48h) = 200 mg/l
*Abra alba:	EC50(5d) = 11 mg/l
*Acartia Tonsa:	LC50(48h) = 21 mg/l



13. DISPOSAL CONSIDERATIONS

Products:	Dispose of by incineration (preferred) or chemical deactivation or other acceptable method in accordance with local regulations.
Container:	Send empty bags to sanitary landfill. Render other types of containers un-useable by puncturing or crushing and sanitary landfill unless prohibited by local regulations.

14. TRANSPORT INFORMATION

UN Number:	1444
IMO Description:	Ammonium persulfate
Class:	5.1
Package Group:	III
Label:	Oxidizer 5.1
EMS:	5.1-06
MFAG:	725
IATA Description:	Ammonium persulfate
Class:	5.1
Sub Risk:	
Package Group:	III
Label:	Oxidizer 5.1
ADR Description:	Ammonium persulfate
ADR class/item:	5.1, 18c
ADR Danger ID:	50
ADR Label:	Oxidizer 5.1

15. REGULATORY INFORMATION

Symbols:	 
Signal word:	Harmful, Oxidizing
Risks:	R22 - Harmful if swallowed. R37 - Irritating to respiratory system. R42/43 - May cause sensitization by inhalation and skin contact.
Safety advice:	S17 - Keep away from combustible material. S24/25 - Avoid contact with skin and eyes. S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Notification/restrictions status:	
EUROPEAN UNION (EU):	All components of this material are on the EINECS inventory, or the components are exempt from inventory reporting.
NORWAY:	Not determined
USA:	All components of this material are on the USA TSCA inventory, or the components are exempt from inventory reporting.

16. OTHER INFORMATION

This information and these recommendations are offered in good faith and believed to be correct as of the date hereof. Information and recommendations are supplied upon the condition that the recipients will make their own decision as to safety and suitability for their purposes. No representations or warranties, either expressed or implied, of merchant ability, fitness for a particular purpose, or of any other nature, are made with respect to the product or the information and recommendations. We make no representation as to completeness or accuracy. In no event we shall be responsible for damages of any nature whatsoever resulting from the use or reliance upon the information and recommendations.

*** END OF SDS***

Safety Data Sheet

PRODUCT CODE: **KHF012**

Effective Date: December-2023

Version: 3.0

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or preparation:

Medium Temperature Encapsulated Breaker: KHF012

Company/undertaking identification:

OPT Chemicals Saudi Factory and Co.
Dammam 2nd Industrial City, 6th Street, 101 Intersection,
Postal code 34334, Kingdom of Saudi Arabia.
+966 56 917 2181

Emergency phone:

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

GHS-US Classification:

Oxidizing solids, Category 3: H272

Acute toxicity, oral, Category 4: H302

Eye irritation, Category 2B: H320

GHS-US Labeling:

Hazard Pictograms:



Signal Word:

Warning

Hazard Statements:

H272 - May intensify fire; oxidizer.

H302 - Harmful if swallowed.

H320 - Causes eye irritation.

Precautionary Statements:

P210 - Keep away from heat. - No smoking.

P220 - keep away from clothing and other combustible materials.

P221 - Take any precaution to avoid mixing with combustibles.

P264 - Wash hands, forearms, and exposed areas thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product.

P280 - Wear eye protection, protective clothing, and protective gloves.

P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P312 - Call a POISON CENTER or doctor/physician if you feel unwell.

P330 - Rinse mouth.

P337+P313 - If eye irritation persists: Get medical advice/attention.

P370+P378 - In case of fire: Use appropriate media for extinction.

P501- Dispose of contents/container according to local, regional, national, and international regulations.

Other Hazards:

No additional information available

Unknown acute toxicity (GHS US)

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance	Conc. [wt.%]	CAS#
Ammonium Persulfate	75-85	7727-54-0
Aliphatic Polymer	15-25	

4. FIRST AID MEASURES

Eye contact:	Immediately flush eye with water for 15 minutes while holding eyelids open, seek medical attention.
Skin contact:	Remove contaminated clothes and shoes. Wash thoroughly with soap and water. Seek medical attention if irritation occurs.
Inhalation:	Remove to fresh air. Seek medical attention if irritation persists or you feel unwell.
Swallowing:	DO NOT induce vomiting. Give 2 glasses of milk (preferred) or water and seek medical attention at once.
Notes:	Symptoms of lung edema may be delayed for several hours and are intensified by physical strain. Rest and hospitalization are required after exposure.

5. FIRE-FIGHTING MEASURES

Extinguishing media:	Deluge with water, Other methods not effective.
Further Information:	Wear protective firefighting clothing and avoid breathing vapors. Use self-contained breathing apparatus in closed areas. Material is an oxidizer.
NFPA Rating:	Health 2 Flammability 1 Reactivity 2 Other: Oxidizer
Combustion products:	see Section 10.

6. ACCIDENTAL RELEASE MEASURES

After spillage/leakage:	Scoop into containers. Flush residual with plenty of water. Keep away from organics and combustible materials.
See Section 8 for protective equipment information.	
See Section 13 for disposal information.	

7. HANDLING AND STORAGE

Special precautions:	Do not store, transport with or allow to contact combustible materials, corrosives, reducing agents or dry bromates (M24, M63, B29, XE67754).
Packaging requirements:	Bag with moisture barrier.
Ventilation:	Provide ventilation to keep airborne concentrations below exposure limits.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection:	Use respirator with dust and mist protection (P2, white).
Eye protection:	Chemical splash goggles.
Hand protection:	Impervious gloves made of PVC Butyl.
Skin protection:	Clean, body-covering clothing.
Exposure limit guidelines (mg/m ³):	Components having no established limits are not listed. (NE: Not established, ND: Not determined) These numbers may be referred to as OEL, MAC, MAK, MEL, OES, REL, PEL, or TLV. TWA is the 8-hour time weighted average. STEL is the short-term exposure limit. "C" indicates the value is a maximum concentration (ceiling).

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Granules
Color:	White to tan
Odor:	Mild
pH value:	No data available
Boiling point:	Decomposes
Pour point:	Decomposes at 120°C
Flash point:	>100°C
Method:	Not applicable
Flammability (explosion limits in air):	
Lower:	Not applicable
Upper:	Not applicable
Auto flammability (auto-ignition temperature):	Not applicable
Vapor pressure:	Not determined
Relative density (specific gravity):	1.76-1.96
Bulk density (solids):	1150 kg/m ³
Solubility in water:	Not applicable
Viscosity:	Not applicable
Relative Vapor Density (air=1):	Not applicable
% Volatile:	0.1

10. STABILITY AND REACTIVITY

Stability:	Disintegrates slowly at room temperature and rapidly at higher temperatures, releasing oxygen.
Conditions to avoid:	Not determined
Materials to avoid:	Acids, moisture, reducing agents, organics, bases, combustible materials, dry bromates.
Hazardous Polymerization:	Will not occur.
Dust explosion hazard (solids):	Not applicable
Special hazards:	Explosive with dry bromates.
Hazardous decomposition products:	Ammonia, oxides of nitrogen Oxygen Sulfur oxides.

11. TOXICOLOGICAL INFORMATION

Eye contact:	Irritant. May cause pain, redness, discomfort.
Skin contact:	Irritant; may cause pain, redness, dermatitis.
Inhalation:	Irritant; may cause pain and coughing.
Ingestion:	Harmful if swallowed; large amounts may cause illness. LD50 (rats) = 820 mg/kg Irritant; may cause pain or discomfort to mouth, throat and stomach.
Carcinogenicity:	Not listed by IARC, USA NTP, or USA OSHA.
Mutagenicity:	Not known to cause heritable genetic damage.
Teratogenicity:	Not known to cause birth defects.
Target organs which may be affected:	None known

12. ECOLOGICAL INFORMATION

Information on product as a whole:	
Main environmental hazards:	None known
Degradability:	Not biodegradable
Other:	None known
Bioaccumulation and Biodegradation of the components:	

13. DISPOSAL CONSIDERATIONS

products: Dispose of by incineration (preferred) or chemical deactivation or other acceptable method in accordance with local regulations.

Container: Send empty bags to sanitary landfill. Render other types of containers un-useable by puncturing or crushing and sanitary landfill unless prohibited by local regulations.

14. TRANSPORT INFORMATION

UN Number: 1444

IMO Description: Ammonium persulfate

Class: 5.1

Package Group: III

Label: Oxidizer 5.1

EMS: 5.1-06

MFAG: 725

IATA Description: Ammonium persulfate

Class: 5.1

Sub Risk:

Package Group: III

Label: Oxidizer 5.1



ADR Description: Ammonium persulfate

ADR class/item: 5.1, 18c

ADR Danger ID: 50

ADR Label: Oxidizer 5.1

15. REGULATORY INFORMATION

Symbols:  

Signal word: Harmful, Oxidizing

Risks: R22 Harmful if swallowed.
R42/43 May cause sensitization by inhalation and skin contact.
R8 Contact with combustible material may cause fire.

Safety advice: S17 - Keep away from combustible material.
S24/25 - Avoid contact with skin and eyes.
S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Notification/restrictions status:

EUROPEAN UNION (EU): All components of this material are on the EINECS inventory, or the components are exempt from inventory reporting.

NORWAY: Not determined

USA: All components of this material are on the USA TSCA inventory, or the components are exempt from inventory reporting.

16. OTHER INFORMATION

This information and these recommendations are offered in good faith and believed to be correct as of the date hereof. Information and recommendations are supplied upon the condition that the recipients will make their own decision as to safety and suitability for their purposes. No representations or warranties, either expressed or implied, of merchant ability, fitness for a particular purpose, or of any other nature, are made with respect to the product or the information and recommendations. We make no representation as to completeness or accuracy. In no event we shall be responsible for damages of any nature whatsoever resulting from the use or reliance upon the information and recommendations.

Safety Data Sheet

PRODUCT CODE: **KHF013**

Effective Date: December-2023

Version: 3.0

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or preparation:

High Temperature Breaker: KHF013

Company/undertaking identification:

OPT Chemicals Saudi Factory and Co.
Dammam 2nd Industrial City, 6th Street, 101 Intersection,
Postal code 34334, Kingdom of Saudi Arabia.
+966 56 917 2181

Emergency phone:

2. HAZARDS IDENTIFICATION

Main health hazards:

Causes eye irritation. Harmful if swallowed. Cause irritation if swallowed.

Main environmental hazards:

None known

Main physical hazards:

Special precautions:

Explosive with ammonium.

Physical hazard:

Oxidizer

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance	Conc. [wt.%]	CAS#
Bromate Compounds	90-100	-

4. FIRST AID MEASURES

Eye contact:

Immediately flush eye with water for 15 minutes while holding eyelids open, seek medical attention.

Skin contact:

Remove contaminated clothes and shoes. Wash thoroughly with soap and water. Seek medical attention if irritation occurs.

Inhalation:

Remove to fresh air. Seek medical attention if irritation persists or you feel unwell.

Swallowing:

If several grams are swallowed, immediate medical is required. If delayed, consider inducing vomiting with ipecac or other means. After vomiting give milk or water.

Notes:

None

5. FIRE-FIGHTING MEASURES

Extinguishing media:

Water Fog, Water.

Further Information:

Wear protective firefighting clothing and avoid breathing vapors. Use self-contained breathing apparatus in closed areas. Material is an oxidizer.

NFPA Rating:

Health 2 Flammability 0 Reactivity 0 Other: oxidizer

Combustion products:

see Section 10.

6. ACCIDENTAL RELEASE MEASURES

After spillage/leakage:

Scoop into containers. Flush residual with plenty of water.

See Section 8 for protective equipment information.

See Section 13 for disposal information.

7. HANDLING AND STORAGE

Special precautions:

Do not store, transport with or allow to contact combustible materials, corrosives, reducing agents or dry ammonium salts.

Packaging requirements:

Coated steel drum or HDPE can.

Ventilation: Provide ventilation to keep airborne concentrations below exposure limits.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection: Use respirator with dust and mist protection (P2, white).
Eye protection: Chemical splash goggles
Hand protection: Impervious gloves
Skin protection: Clean, body-covering clothing.
Exposure limit guidelines (mg/m³): Dust particles total: 10mg/m³, respirable fraction = 5mg/m³
(NE: Not established, ND: Not determined)
These numbers may be referred to as OEL, MAC, MAK, MEL, OES, REL, PEL, or TLV.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form: Granules
Color: White
Odor: None
pH value: 7.0-8.0 (1.0 wt.% water solution)
Boiling point: Decomposes
Pour point: Decomposes at 380°C
Flash point: Not combustible but supports combustion with other material.
Method: Not applicable
Flammability (explosion limits in air):
Lower: Not applicable
Upper: Not applicable
Auto flammability (auto-ignition temperature): Not applicable
Vapor pressure: Not determined
Relative density (specific gravity): 3.27-3.47
Bulk density (solids): 2060 kg/m³
Solubility in water: 36% (20°C)
Viscosity: Not applicable
Relative Vapor Density (air=1): Not applicable
% Volatile: 0

10. STABILITY AND REACTIVITY

Stability: Stable but decompose rapidly at higher temperatures.
Conditions to avoid: Not determined
Materials to avoid: Acids, reducing agents, organics, combustible materials, dry ammonium salts.
Hazardous Polymerization: Will not occur.
Dust explosion hazard (solids): Not applicable
Special hazards: Explosive with dry ammonium salts.
Hazardous decomposition products: Bromine, bromine oxides

11. TOXICOLOGICAL INFORMATION

Eye contact: Irritant. May cause pain, redness, discomfort.
Skin contact: Irritant; may cause pain, redness, dermatitis.
Inhalation: Irritant; may cause pain and coughing.
Ingestion: Harmful if swallowed; large amounts may cause illness. LD50 (rats) = 400 mg/kg Irritant; may cause pain or discomfort to mouth, throat and stomach.

Carcinogenicity:	Not listed by IARC, USA NTP, or USA OSHA.
Mutagenicity:	Not known to cause heritable genetic damage.
Teratogenicity:	Not known to cause birth defects.
Target organs which may be affected:	Kidney, lung, blood

12. ECOLOGICAL INFORMATION

Information on product as a whole:	None known
Main environmental hazards:	Not biodegradable
Degradability:	None known



13. DISPOSAL CONSIDERATIONS

Products:	Dispose of by incineration (preferred) or chemical deactivation or other acceptable method in accordance with local regulations.
Container:	Incinerate or hazardous waste landfill unless prohibited by local regulations.

14. TRANSPORT INFORMATION

UN Number:	1494
IMO Description:	Bromates
Class:	5.1
Package Group:	III
Label:	Oxidizer 5.1
EMS:	5.1-06
MFAG:	745
IATA Description:	Ammonium persulfate
Class:	5.1
Sub Risk:	
Package Group:	II
Label:	Oxidizer 5.1
ADR Description:	Bromate
ADR class/item:	5.1, 16B
ADR Danger ID:	50
ADR Label:	Oxidizer 5.1

15. REGULATORY INFORMATION

Symbols:	 
Signal word:	Harmful, Oxidizing
Risks:	R22 - Harmful if swallowed. R36/38 - Irritating to eyes and skin R9 explosive when mixed with combustibles.
Safety advice:	S22 - do not breathe dust S24/25 - Avoid contact with skin and eyes. S35 - must be deposited in a safe way.
Notification/restrictions status:	
EUROPEAN UNION (EU):	All components of this material are on the EINECS inventory, or the components are exempt from inventory reporting.
NORWAY:	Not determined
USA:	All components of this material are on the USA TSCA inventory, or the components are exempt from inventory

reporting.

16. OTHER INFORMATION

This information and these recommendations are offered in good faith and believed to be correct as of the date hereof. Information and recommendations are supplied upon the condition that the recipients will make their own decision as to safety and suitability for their purposes. No representations or warranties, either expressed or implied, of merchant ability, fitness for a particular purpose, or of any other nature, are made with respect to the product or the information and recommendations. We make no representation as to completeness or accuracy. In no event we shall be responsible for damages of any nature whatsoever resulting from the use or reliance upon the information and recommendations.

*** END OF SDS***

Safety Data Sheet

PRODUCT CODE: **KHF014**

Effective Date: December-2023

Version: 3.0

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or preparation:

High Temperature Encapsulated Breaker: KHF014

Company/undertaking identification:

OPT Chemicals Saudi Factory and Co.
Dammam 2nd Industrial City, 6th Street, 101 Intersection,
Postal code 34334, Kingdom of Saudi Arabia.
+966 56 917 2181

Emergency phone:

2. HAZARDS IDENTIFICATION

Main health hazards:

Causes eye irritation. Harmful if swallowed. Cause irritation if swallowed.

Main environmental hazards:

None known

Main physical hazards:

Special precautions:

Explosive with ammonium salts

Physical hazard:

Oxidizer

Pictogram:



Signal word:

Danger

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance	Conc. [wt.%]	CAS#
Sodium Bromate	80-90	7789-38-0
Phenol Formaldehyde Resin	10-20	9003-35-4

4. FIRST AID MEASURES

Eye contact:

Immediately flush eye with water for 15 minutes while holding eyelids open, seek medical attention.

Skin contact:

Remove contaminated clothes and shoes. Wash thoroughly with soap and water. Seek medical attention if irritation occurs.

Inhalation:

Remove to fresh air. Seek medical attention if irritation persists or you feel unwell.

Swallowing:

If several grams are swallowed, immediate medical is required. If delayed, consider inducing vomiting with ipecac or other means. After vomiting give milk or water.

Notes:

None

5. FIRE-FIGHTING MEASURES

Extinguishing media:

Water

Further information:

Wear protective firefighting clothing and avoid breathing vapors. Use self-contained breathing apparatus in closed areas. Material is an oxidizer.

NFPA Rating:

Health 2 Flammability 0 Reactivity 2 Other: Oxidizer

Combustion products:

see Section 10.

6. ACCIDENTAL RELEASE MEASURES

After spillage/leakage:

Scoop into containers. Flush residual with plenty of water.

See Section 8 for protective equipment information.

See Section 13 for disposal information.

7. HANDLING AND STORAGE

Special precautions:	Do not store, transport with or allow to contact combustible materials, corrosives, reducing agents or dry ammonium salts.
Packaging requirements:	No information
Ventilation:	Provide ventilation to keep airborne concentrations below exposure limits.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection:	Use respirator with dust and mist protection (P2, white).
Eye protection:	Chemical splash goggles
Hand protection:	Impervious gloves
Skin protection:	Clean, body-covering clothing
Exposure limit guidelines (mg/m ³):	
Dust particles total:	10mg/m ³ , respirable fraction = 5mg/m ³ (NE: Not established, ND: Not determined) These numbers may be referred to as OEL, MAC, MAK, MEL, OES, REL, PEL, or TLV.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Granules
Color:	Light yellow
Odor:	None
pH value:	Not determined
Boiling point:	N/A
Pour point:	Decomposes
Flash point:	>100°C
Method:	Not applicable
Flammability (explosion limits in air):	Not applicable
Lower:	Not applicable
Upper:	Not applicable
Auto flammability (auto-ignition temperature):	Not applicable
Vapor pressure:	N/A
Relative density (specific gravity):	1.92-2.12
Bulk Density (solids):	1790 kg/m ³ (25°C)
Solubility in water:	Not applicable
Viscosity:	Not applicable
Relative Vapor Density (air=1):	Not applicable
% Volatile:	0

10. STABILITY AND REACTIVITY

Stability:	Stable but decompose rapidly at higher temperatures.
Conditions to avoid:	Not determined
Materials to avoid:	Acids, reducing agents, organics, combustible materials, dry ammonium salts.
Hazardous polymerization:	Will not occur
Dust explosion hazard (solids):	Not applicable
Special hazards:	Explosive with dry ammonium salts.
Hazardous decomposition products:	Bromine, bromine oxides

11. TOXICOLOGICAL INFORMATION

Eye contact:	Severe irritant; may cause pain and redness.
--------------	--

Skin contact:	Irritant. May cause pain, redness, discomfort.
Inhalation:	Irritant; may cause pain, redness, dermatitis.
Ingestion:	Harmful if swallowed; large amounts may cause illness. LD50 (rats) = 400 mg/kg Irritant; may cause pain or discomfort to mouth, throat and stomach.
Carcinogenicity:	Not listed by IARC, USA NTP, or USA OSHA.
Mutagenicity:	Not known to cause heritable genetic damage.
Teratogenicity:	Not known to cause birth defects.
Target organs what might be affected:	Kidney, lung, blood

12. ECOLOGICAL INFORMATION

Information on product as a whole:	Not known
Main environmental hazards:	Not applicable
Degradability:	Not known

13. DISPOSAL CONSIDERATIONS

Product:	Dispose by incineration (preferred) or chemical deactivation or other acceptable method in accordance with local regulations.
Container:	Incinerate or hazardous waste landfill unless prohibited by local regulations.

14. TRANSPORT INFORMATION

UN Number:	1494
IMO Description:	Bromate
Class:	5.1
Package Group:	III
Label:	Oxidizer 5.1
EMS:	5.1-06
MFAG:	745
IATA Description:	Bromate
Class:	5.1
Sub Risk:	
Package Group:	II
Label:	Oxidizer 5.1
ADR Description:	Bromate
ADR class/item:	5.1, 16B
ADR Danger ID:	50
ADR Label:	Oxidizer 5.1

15. REGULATORY INFORMATION

Symbols:



Harmful Oxidizing

Risks:

R22 Harmful if swallowed.
R36/38 Irritating to eyes and skin.
R9 explosive when mixed with combustibles.

Safety advice:

S22 do not breathe dust.
S24/25 Avoid contact with skin and eyes.
S35 must be deposited in a safe way.

Notification/restrictions status:

EUROPEAN UNION (EU):

All components of this material are on the EINECS inventory, or the components are exempt from inventory reporting.

NORWAY:

Not determined

USA:

All components of this material are on the USA TSCA inventory, or the components are exempt from inventory reporting.

16. OTHER INFORMATION

DISCLAIMER:

This information and these recommendations are offered in good faith and believed to be correct as of the date hereof. Information and recommendations are supplied upon the condition that the recipients will make their own decision as to safety and suitability for their purposes. No representations or warranties, either expressed or implied, of merchant ability, fitness for a particular purpose, or of any other nature, are made with respect to the product or the information and recommendations. We make no representation as to completeness or accuracy. In no event we shall be responsible for damages of any nature whatsoever resulting from the use or reliance upon the information and recommendations.

*** END OF SDS***

Safety Data Sheet

PRODUCT CODE: **KHF023**

Effective Date: December-2023

Version: 3.0

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or preparation:

Hydration Aid: KHF023

Company/undertaking identification:

OPT Chemicals Saudi Factory and Co.
Dammam 2nd Industrial City, 6th Street, 101 Intersection,
Postal code 34334, Kingdom of Saudi Arabia.
+966 56 917 2181

Emergency phone:

2. HAZARDS IDENTIFICATION

Main environmental hazards:

None known

Main physical hazards

Special precautions:

None

Physical hazard:

None

Main health hazards:

Causes eye and skin irritation.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance	Conc. [wt.%]	CAS#
Salt of Aliphatic Acid	20-50	
Water	50-80	7732-18-5

4. FIRST AID MEASURES

Eye contact:

Immediately flush eyes with plenty of water for 30 minutes while holding eyelids open. Seek medical attention immediately.

Skin contact:

Wash with water and soap.

Inhalation:

Remove to fresh air.

Swallowing:

If several grams are swallowed, give 2 glasses of milk (preferred) or water and seek medical advice.

Notes:

None

5. FIRE-FIGHTING MEASURES

Extinguishing media:

None needed

Further information:

Wear protective firefighting clothing and avoid breathing vapors. Use self-contained breathing apparatus in closed areas.

NFPA Rating:

Health 1 Flammability 0 Reactivity 0 Other: None

Combustion products:

See Section 10.

6. ACCIDENTAL RELEASE MEASURES

After spillage/leakage:

Contain with dikes. Flush residual with plenty of water.

See Section 8 for protective equipment information.

See Section 13 for disposal information.

7. HANDLING AND STORAGE

Special precautions:

No special precautions required.

Packaging requirements:

High density polyethylene (HDPE) drum or can.

Ventilation:

No special requirements.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection:	None normally needed.
Eye protection:	Chemical splash goggles.
Hand protection:	Impervious gloves made of rubber.
Skin protection:	Chemical resistant apron.
Exposure limit guidelines (mg/m ³):	No components have established exposure limits.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Liquid
Color:	Colorless
Odor:	Vinegar
pH value:	4.5-5.5
Boiling point:	Not determined
Pour point:	Not determined
Flash point:	Not combustible
Flammability (explosion limits in air):	
Lower:	Not applicable
Upper:	Not applicable
Vapor pressure:	Not determined
Relative density (specific gravity):	1.05-1.10
Bulk density (solids):	Not applicable
Solubility in water:	Miscible
Viscosity:	Not determined
Relative vapor density (air=1):	> 1
% Volatile:	Not determined

10. STABILITY AND REACTIVITY

Stability:	Stable
Conditions to avoid:	Unknown
Materials to avoid:	Oxidizers
Hazardous polymerization:	Will not occur.
Dust explosion hazard (solids):	Not applicable
Special hazards:	None
Hazardous decomposition products:	When heated strongly or burned, oxides of carbon and harmful organic chemical fumes are released.

11. TOXICOLOGICAL INFORMATION

Eye contact:	Irritant. May cause pain, redness, discomfort.
Skin contact:	Irritant. May cause pain, redness, discomfort.
Inhalation:	Due to physical form, this material is not inhalable.
Ingestion:	No effect expected.
Carcinogenicity:	Not listed by IARC, USA NTP, or USA OSHA.
Mutagenicity:	Not known to cause heritable genetic damage.
Teratogenicity:	Not known to cause birth defects.
Target organs what might be affected:	Not known
Sensitization:	Not known to cause allergic reaction.
Other:	May affect bones and joints.

12. ECOLOGICAL INFORMATION

Information on product as a whole:

Main environmental hazards:	None known
Degradability:	Not determined
Other:	None known


13. DISPOSAL CONSIDERATIONS

Product:	Dispose of by sanitary land-filling or other acceptable method in accordance with local regulations.
Container:	Triple rinse, crush and ship to sanitary landfill unless prohibited by local regulations.

14. TRANSPORT INFORMATION

UN Number:	None
IMO Description:	Not regulated
Class:	8
Package Group:	
Label:	
EMS:	
MFAG:	
IATA Description:	Not regulated
Class:	
Sub Risk:	
Package Group:	
Label:	
ADR Description:	Not regulated
ADR class/item:	
ADR Danger ID:	
ADR Label:	

15. REGULATORY INFORMATION

Symbols:	
	Irritant
Risks:	R36/38 Irritating to eyes and skin.
Safety advice:	S24/25 Avoid contact with skin and eyes.
Notification/restrictions status:	
EUROPEAN UNION (EU):	All components of this material are on the EINECS inventory, or the components are exempt from inventory reporting.
NORWAY:	Not determined
USA:	All components of this material are on the USA TSCA inventory, or the components are exempt from inventory reporting.

16. OTHER INFORMATION

This information and these recommendations are offered in good faith and believed to be correct as of the date hereof. Information and recommendations are supplied upon the condition that the recipients will make their own decision as to safety and suitability for their purposes. No representations or warranties, either expressed or implied, of merchant ability, fitness for a particular purpose, or of any other nature, are made with respect to the product or the information and recommendations. We make no representation as to completeness or accuracy. In no event we shall be responsible for damages of any nature whatsoever resulting from the use or reliance upon the information and recommendations.

*** END OF SDS***

Safety Data Sheet

PRODUCT CODE: **KHF024**

Effective Date: December-2023

Version: 3.0

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or preparation:

pH Buffer: KHF024

Company/undertaking identification:

OPT Chemicals Saudi Factory and Co.
Dammam 2nd Industrial City, 6th Street, 101 Intersection,
Postal code 34334, Kingdom of Saudi Arabia.
+966 56 917 2181

Emergency phone:

2. HAZARDS IDENTIFICATION

Main environmental hazards:

None known

Main physical hazards

Special precautions:

None

Physical hazard:

None

Main health hazards:

Causes eye and skin irritation Causes respiratory tract irritation.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance	Conc. [wt.%]	CAS#
Inorganic Salt	90-100	

4. FIRST AID MEASURES

Eye contact:

Immediately flush eyes with water for 15 minutes while holding eyelids open. Seek medical attention.

Skin contact:

Rinse with water.

Inhalation:

Remove to fresh air.

Swallowing:

Rinse mouth with water. Seek medical attention if irritation occurs.

Notes:

None

5. FIRE-FIGHTING MEASURES

Extinguishing media:

None needed

Further information:

None known

NFPA Rating:

Health 1 Flammability 0 Reactivity 0 Other: None

Combustion products:

See Section 10.

6. ACCIDENTAL RELEASE MEASURES

After spillage/leakage:

Scoop into containers. Flush residual with plenty of water.

See Section 8 for protective equipment information.

See Section 13 for disposal information.

7. HANDLING AND STORAGE

Special precautions:

No special precautions required.

Packaging requirements:

Paper bag (minimum 3 ply), or other industrial container designed for powders and granulated materials.

Ventilation:

Provide ventilation to keep airborne concentrations below exposure limits.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection:

Use respirator with dust and mist protection (P2, white).

Eye protection:	Chemical splash goggles.
Hand protection:	Impervious gloves.
Skin protection:	Clean, body-covering clothing.
Exposure limit guidelines (mg/m ³):	No components have established exposure limits. Dust particles: total = 10 mg/m ³ , respirable fraction = 5 mg/m ³ .

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Granules
Color:	White
Odor:	None
pH value:	9.5-10.5 (2.0 wt.% water solution)
Boiling point:	Decomposes
Pour point:	Not determined
Flash point:	Not applicable
Method:	Not applicable
Flammability (explosion limits in air):	
Lower:	Not applicable
Upper:	Not applicable
Auto flammability (auto-ignition temperature):	Not applicable
Vapor pressure:	Not available
Relative density (specific gravity):	2.01-2.21
Bulk density (solids):	1030 kg/m ³ (25°C)
Solubility in water:	13 (20°C)
Viscosity:	Not applicable
Relative vapor density (air=1):	Not available
% Volatile:	Not available

10. STABILITY AND REACTIVITY

Stability:	Stable
Conditions to avoid:	Not determined
Materials to avoid:	Acids
Hazardous polymerization:	Will not occur
Dust explosion hazard (solids):	No
Special hazards:	None
Hazardous decomposition products:	None

11. TOXICOLOGICAL INFORMATION

Eye contact:	Irritant. May cause pain, redness, discomfort.
Skin contact:	No effect expected. Not known to cause heritable genetic damage.
Inhalation:	Irritant; may cause pain and coughing.
Ingestion:	No effect expected.
Carcinogenicity:	Not listed by IARC, USA NTP, or USA OSHA.
Mutagenicity:	Not determined
Teratogenicity:	Not known to cause birth defects.
Target organs what might be affected:	None known
Sensitization:	Not known to cause allergic reaction.
Other:	None

12. ECOLOGICAL INFORMATION

Information on product as a whole:

Main environmental hazards:	None known
Degradability:	Not applicable
Other:	None known


13. DISPOSAL CONSIDERATIONS

Product:	Dispose of by sanitary land-filling or other acceptable method in accordance with local regulations.
Container:	Send empty bags to sanitary landfill. Render other types of containers unusable by puncturing or crushing and sanitary landfill unless prohibited by local regulations.

14. TRANSPORT INFORMATION

UN Number:	None
IMO Description:	Not regulated
Class:	8
Package Group:	
Label:	
EMS:	
MFAG:	
IATA Description:	Not regulated
Class:	
Sub Risk:	
Package Group:	
Label:	
ADR Description:	Not regulated
ADR class/item:	Not regulated
ADR Danger ID:	
ADR Label:	

15. REGULATORY INFORMATION

Symbols:	
	Irritant
Risks:	R36 Irritating to eyes.
Safety advice:	S22 Do not breath dust. S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Notification/restrictions status:	
EUROPEAN UNION (EU):	All components of this material are on the EINECS inventory, or the components are exempt from inventory reporting.
NORWAY:	Not determined
USA:	All components of this material are on the USA TSCA inventory, or the components are exempt from inventory reporting.

16. OTHER INFORMATION

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product or the information and recommendations. We make no representation as to completeness or accuracy. In no event we shall be responsible for damages of any nature whatsoever resulting from the use or reliance upon the information and recommendations.

*** END OF SDS***

Safety Data Sheet

PRODUCT CODE: **KHF025**

Effective Date: December-2023

Version: 3.0

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or preparation:

Delaying Agent: KHF025

Company/undertaking identification:

OPT Chemicals Saudi Factory and Co.
Dammam 2nd Industrial City, 6th Street, 101 Intersection,
Postal code 34334, Kingdom of Saudi Arabia.
+966 56 917 2181

Emergency phone:

2. HAZARDS IDENTIFICATION

Main environmental hazards: None known

Main physical hazards

Special precautions: None

Physical hazard: Dust

Main health hazards: None known

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance:	Conc. [wt.%]	CAS#
Inorganic Salt	60-100	

4. FIRST AID MEASURES

Eye contact:	Flush eyes with water for 5 minutes. Get medical attention if irritation occurs.
Skin contact:	Wash with water and soap.
Inhalation:	Rinse with water.
Swallowing:	Remove to fresh air.
Notes:	None

5. FIRE-FIGHTING MEASURES

Extinguishing media:	None needed
Further information:	None known
NFPA Rating:	Health 1 Flammability 0 Reactivity 0 Other: None
Combustion products:	See Section 10.

6. ACCIDENTAL RELEASE MEASURES

After spillage/leakage:	Scoop into containers. Flush residual with plenty of water.
See Section 8 for protective equipment information.	
See Section 13 for disposal information.	

7. HANDLING AND STORAGE

Special precautions:	No special precautions required.
Packaging requirements:	Paper bag (minimum 3 ply), or other industrial container designed for powders and granulated materials.
Ventilation:	Provide ventilation to keep airborne concentrations below exposure limits.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection:	Use respirator with dust and mist protection (white P2).
Eye protection:	Chemical splash goggles.

Hand protection:	Cotton gloves
Skin protection:	Clean body covering clothing.
Exposure limit guidelines (mg/m ³):	No components have established exposure limits. Dust particles: total = 10 mg/m ³ , respirable fraction = 5 mg/m ³ .

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Powder
Color:	White
Odor:	None
pH value:	8.0-9.0 (1.0 wt.% water solution)
Boiling point:	Decomposes
Pour point:	Decomposes at 50°C
Flash point:	Not combustible
Flammability (explosion limits in air):	
Lower:	Not applicable
Upper:	Not applicable
Vapor pressure:	Not determined
Relative density (specific gravity):	2.13-2.33
Bulk density (solids):	1000 kg/m ³
Solubility in water:	100 g/l (20°C)
Viscosity:	Not determined
Relative vapor density (air=1):	Not applicable
% Volatile:	0

10. STABILITY AND REACTIVITY

Stability:	Stable
Conditions to avoid:	Unknown
Materials to avoid:	Acids
Hazardous polymerization:	Will not occur.
Dust explosion hazard (solids):	No
Special hazards:	None
Hazardous decomposition products:	None

11. TOXICOLOGICAL INFORMATION

Eye contact:	No effect expected.
Skin contact:	No effect expected.
Inhalation:	No effect expected.
Ingestion:	No effect expected LD50 (rats) > 5000 mg/kg
Carcinogenicity:	Not listed by IARC, USA NTP, or USA OSHA.
Mutagenicity:	Not known to cause heritable genetic damage.
Teratogenicity:	Not known to cause birth defects.
Target organs what might be affected:	Not known
Other:	None

12. ECOLOGICAL INFORMATION

Information on product as a whole:	
Main environmental hazards:	None known
Degradability:	Not applicable
Other:	None known

13. DISPOSAL CONSIDERATIONS

Product:	Dispose of by sanitary land-filling or other acceptable method in accordance with local regulations.
Container:	Send empty bags to sanitary landfill. Render other types of containers un-useable by puncturing or crushing and sanitary landfill unless prohibited by local regulations.

14. TRANSPORT INFORMATION

UN Number:	None
IMO Description:	Not regulated
Class:	
Package Group:	
Label:	
EMS:	
MFAG:	
IATA Description:	Not regulated
Class:	
Sub Risk:	
Package Group:	
Label:	
ADR Description:	Not regulated
ADR class/item:	
ADR Danger ID:	
ADR Label:	
TREM Card:	

15. REGULATORY INFORMATION

Symbols:	
Risks:	Evaluated as not required to be labelled.
Safety advice:	Exercise reasonable care and cleanliness.
Notification/restrictions status:	
EUROPEAN UNION (EU):	All components of this material are on the EINECS inventory, or the components are exempt from inventory reporting.
NORWAY:	Not determined
USA:	All components of this material are on the USA TSCA inventory, or the components are exempt from inventory reporting.

16. OTHER INFORMATION

This information and these recommendations are offered in good faith and believed to be correct as of the date hereof. Information and recommendations are supplied upon the condition that the recipients will make their own decision as to safety and suitability for their purposes. No representations or warranties, either expressed or implied, of merchant ability, fitness for a particular purpose, or of any other nature, are made with respect to the product or the information and recommendations. We make no representation as to completeness or accuracy. In no event we shall be responsible for damages of any nature whatsoever resulting from the use or reliance upon the information and recommendations.

*** END OF SDS***

Safety Data Sheet

PRODUCT CODE: **KHF026**

Effective Date: December-2023

Version: 3.0

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or preparation:

Zirconium Crosslinker: KHF026

Company/undertaking identification:

OPT Chemicals Saudi Factory and Co.
Dammam 2nd Industrial City, 6th Street, 101 Intersection,
Postal code 34334, Kingdom of Saudi Arabia.
+966 56 917 2181

Emergency phone:

2. HAZARDS IDENTIFICATION

Main health hazards:

May be mildly irritating to eyes. Harmful if swallowed. Harmful if inhaled.

Main environmental hazards:

None known

Main physical hazards:

Special precautions:

None

Physical hazard:

Flammable liquid

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance	Conc. [wt.%]	CAS #
Organo-Zirconium	15-25	Proprietary
Propan-2-OI	25-35	67-63-0
Water	35-55	7732-18-5

4. FIRST AID MEASURES

Eye contact:

Immediately flush eyes with water for 15 minutes while holding eyelids open. Seek medical attention.

Skin contact:

Remove contaminated clothes and shoes. Wash thoroughly with soap and water. Seek medical attention if irritation occurs.

Inhalation:

Remove to fresh air. Seek medical attention if irritation persists or you feel unwell.

Swallowing:

If several grams are swallowed, immediate medical is required. If delayed, consider inducing vomiting with ipecac or other means. After vomiting give milk or water.

Notes:

None

5. FIRE-FIGHTING MEASURES

Extinguishing media:

Alcohol Foam, CO₂, Dry Chemical

Further information:

Wear protective fire-fighting clothing and avoid breathing vapors. Use self-contained breathing apparatus in closed areas.

NFPA Rating:

Health 2 Flammability 3 Reactivity 0 Other: None

Combustion products:

See Section 10.

6. ACCIDENTAL RELEASE MEASURES

After spillage/leakage:

Contain with dikes. Use explosion proof equipment to recover. Remove all sources of ignition. Soak up residual on inert absorbent (sand). Put in plastic drum approved for flammables.

See Section 8 for protective equipment information.

See Section 13 for disposal information.

7. HANDLING AND STORAGE

Special precautions:	Keep away from heat, sparks, and flame. Keep container closed when not in use. Use with adequate ventilation. Do not cut or weld on container.
Packaging requirements:	Steel or high-density polyethylene (HDPE) container approved for flammables.
Ventilation:	Provide ventilation to keep airborne concentrations below exposure limit.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection:	Use respirator with organic vapor/acid gas protection (E, yellow).
Eye protection:	Chemical splash goggles.
Hand protection:	Impervious gloves made of rubber.
Skin protection:	Chemical resistant apron.
Exposure limit guidelines (mg/m ³):	Components having no established limits are not listed. (NE: Not established, ND: Not determined) These numbers may be referred to as OEL, MAC, MAK, MEL, OES, REL, PEL, or TLV,TWA is the 8 hour time weighted average. STEL is the short term exposure limit. "C" indicates the value is a maximum concentration (ceiling).

	2,2'-IMINODIETHANOL			METHANOL			PROPAN-2-OL		
	<u>TWA</u>	<u>STEL</u>	<u>ANM</u>	<u>TWA</u>	<u>STEL</u>	<u>ANM</u>	<u>TWA</u>	<u>STEL</u>	<u>ANM</u>
AUSTRALIA	15	NE		260	310		980	1225	
BELGIUM	13	NE		262 H	328		985	1230	
DENMARK	15	NE		260 H	NE		490	NE	
EU	NE	NE		260	NE		NE	NE	
FRANCE	15	NE		260	1300		NE	980	
GERMANY	NE	NE		260 H	NE		980	NE	
HOLLAND	15	NE		260 H	NE		980 H	NE	
NORWAY	15	NE		130 H	NE		245	NE	
UNITED KINGDOM	15	NE		260 H	310		980 H	1225	

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Liquid
Color:	Light yellow
pH value:	5.5-6.5
Boiling point:	Not determined
Pour point:	Approximately -20°C
Flash point:	32°C
Method:	Pensky-Martens CC
Flammability (explosion limits in air):	
Lower:	Not determined
Upper:	Not determined
Auto flammability (auto-ignition temperature):	Not determined
Vapor pressure:	Not determined
Relative density (specific gravity):	1.15-1.20
Bulk density (solids):	Not applicable
Solubility in water:	Miscible

Viscosity:	Not determined
Relative vapor density (air=1):	Not determined
% Volatile:	Not determined

10. STABILITY AND REACTIVITY

Stability:	Stable
Conditions to avoid:	Not determined
Materials to avoid:	Oxidizers Aluminum
Hazardous polymerization:	Will not occur.
Dust explosion hazard (solids):	No
Special hazards:	None
Hazardous decomposition products:	When heated strongly or burned, oxides of carbon and harmful organic chemical fumes are released.

11. TOXICOLOGICAL INFORMATION

Eye contact:	Mildly irritating
Skin contact:	Mildly irritating
Inhalation:	Harmful if inhaled; may cause illness.
Ingestion:	Harmful if swallowed; large amounts may cause illness.
Carcinogenicity:	Not listed by IARC, USA NTP, or USA OSHA.
Mutagenicity:	Not known to cause heritable genetic damage.
Teratogenicity:	Not known to cause birth defects.
Target organs what might be affected:	None known
Sensitization:	Not known to cause allergic reaction.
Other:	May cause blindness. Methanol should be treated as a cumulative poison over time intervals of a few days.

12. ECOLOGICAL INFORMATION

Information on product as a whole:	
Main environmental hazards:	None known
Degradability:	Not determined
Other:	None known

Bioaccumulation and Biodegradation of the components:

Substance	Log Pow	Biodegradation
METHANOL	-0.8	98% (50d) - Literature
PROPAN-2-OL	-0.16/0.28	72% (20d) - Literature

13. DISPOSAL CONSIDERATIONS

Product:	Dispose of by incineration (preferred) or other acceptable method in accordance with local regulations.
Container:	Sell to approved drum reconditioner or render container unusable by puncturing or crushing. Send to sanitary landfill unless prohibited by local regulations.

14. TRANSPORT INFORMATION

UN Number:	UN 1993
IMO Description:	Flammable liquid, N.O.S. (contains methanol)
Class:	3.3
Package Group:	III
Label:	Flammable Liquid 3
EMS:	

MFAG:	
IATA Description:	Flammable liquid, N.O.S. (contains methanol)
Class:	3
Sub Risk:	
Package Group:	III
Label:	Flammable Liquid 3
ADR Description:	Flammable liquid, N.O.S. (contains methanol)
ADR class/item:	3,31c
ADR Danger ID:	30
ADR Label:	Flammable Liquid 3
TREM Card:	30G35

15. REGULATORY INFORMATION

Symbols:



Irritant

Risks:

R10 Flammable.

R20/22 Harmful by inhalation and if swallowed.

Safety advice:

S16 Keep away from sources of ignition - No smoking.

S46 If swallowed, seek medical advice immediately and show this container or label.

Notification/restrictions status:

EUROPEAN UNION (EU):

Not determined

NORWAY:

Not determined

USA:

All components of this material are on the USA TSCA inventory, or the components are exempt from inventory reporting.

16. OTHER INFORMATION

This information and these recommendations are offered in good faith and believed to be correct as of the date hereof. Information and recommendations are supplied upon the condition that the recipients will make their own decision as to safety and suitability for their purposes. No representations or warranties, either expressed or implied, of merchant ability, fitness for a particular purpose, or of any other nature, are made with respect to the product or the information and recommendations. We make no representation as to completeness or accuracy. In no event we shall be responsible for damages of any nature whatsoever resulting from the use or reliance upon the information and recommendations.

*** END OF SDS***

Safety Data Sheet

PRODUCT CODE: **KHF031**

Effective Date: December-2023

Version: 3.0

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or preparation:

CMHPG Gelling Agent: KHF031

Company/undertaking identification:

OPT Chemicals Saudi Factory and Co.
Dammam 2nd Industrial City, 6th Street, 101 Intersection,
Postal code 34334, Kingdom of Saudi Arabia.
+966 56 917 2181

Emergency phone:

2. HAZARDS IDENTIFICATION

Main Health Hazards:

May be mildly irritating to eyes. May be mildly irritating if inhaled. May cause allergic reaction upon repeated inhalation exposure.

Main environmental hazards:

None known

Main physical hazards:

Special precautions:

None

Physical hazard

Water slick. dust explode

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance**Conc. [wt.%]****CAS#**

Carbohydrate Polymer Derivative

90-100

4. FIRST AID MEASURES

Eye contact:

Flush eyes with water for 5 minutes. Get medical attention if irritation occurs.

Skin contact:

Rinse with water.

Inhalation:

Remove to fresh air. Seek medical attention if irritation persists or you feel unwell.

Swallowing:

Rinse mouth with water. Seek medical attention if irritation occurs. attention at once.

Notes

None

5. FIRE-FIGHTING MEASURES

Extinguishing media:

Water Fog, Alcohol Foam, CO₂, Dry Chemical

Further Information:

Suspended dust may present a dust explosion hazard. Slick when wet.

NFPA Rating:

Health 1; Flammability 1; Reactivity 0; Other: None.

Combustion products:

see Section 10.

6. ACCIDENTAL RELEASE MEASURES

After spillage/leakage:

Scoop into containers. Avoid generating dust. Use water carefully; slick when wet.

See Section 8 for protective equipment information.

See Section 13 for disposal information.

7. HANDLING AND STORAGE

Special Precautions:

Avoid generating dust.

Packaging requirements:

Paper bag (minimum 3 ply), or other industrial container designed for powders and granulated materials.

Ventilation:

Provide ventilation to keep airborne concentrations below exposure limits.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection:

Use respirator with dust and mist protection (P2, white).

Eye protection:	Chemical splash goggles.
Hand protection:	Impervious gloves made of: PVC Butyl
Skin protection:	Clean, body-covering clothing.
Exposure limit guidelines (mg/m ³):	No components have established exposure limits. Dust particles: total = 10 mg/m ³ , respirable fraction = 5 mg/m ³

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Powder
Color:	Light yellow
Odor:	Mild
pH value:	Not determined
Boiling point:	Not applicable
Pour point:	Not determined
Flash point:	>100°C
Method:	Not available
Flammability (explosion limits in air):	
Lower:	Not determined
Upper:	Not determined
Auto flammability (auto-ignition temperature):	Not determined
Vapor pressure:	Not applicable
Relative density (specific gravity):	1.40-1.60
Bulk density (solids):	560-720 kg/m ³
Solubility in water:	Soluble
Viscosity:	Not applicable
Relative vapor density (air=1):	Not applicable
% Volatile:	Not applicable

10. STABILITY AND REACTIVITY

Stability:	Stable
Conditions to avoid:	Not determined
Materials to avoid:	Oxidizers
Hazardous polymerization:	Will not occur.
Dust explosion hazard (solids):	Yes
Special hazards:	None
Hazardous decomposition products:	When heated strongly or burned, oxides of carbon and harmful organic chemical fumes are released.

11. TOXICOLOGICAL INFORMATION

Eye contact:	Mildly irritating
Skin contact:	No effect expected.
Inhalation:	Mildly irritating
Ingestion:	No effect expected.
Carcinogenicity:	Not listed by IARC, USA NTP, or USA OSHA
Mutagenicity:	Not known to cause heritable genetic damage.
Teratogenicity:	Not known to cause birth defects.
Target organs which may be affected:	None known
Sensitization:	May cause allergic reaction upon repeated inhalation exposure.
Other:	None

12. ECOLOGICAL INFORMATION

Information on product as a whole:

Main environmental hazards:	None known
Degradability:	Biodegradable
Other:	None known

13. DISPOSAL CONSIDERATIONS

Product:	Solids may be sanitary landfilled, and liquids may be injected in disposal wells or disposed of by other acceptable methods in accordance with local regulations.
Container:	Send empty bags to sanitary landfill. Render other types of containers unusable by puncturing or crushing and sanitary landfill unless prohibited by local regulations.

14. TRANSPORT INFORMATION

UN Number:	None
IMO Description:	Not regulated
Class:	
Package Group:	
Label:	
EMS:	
MFAG:	
IATA Description:	Not regulated
Class:	
Sub Risk:	
Package Group:	
Label:	
ADR Description:	Not regulated
ADR class/item:	
ADR Danger ID:	
ADR Label:	

15. REGULATORY INFORMATION

Symbols:	
Risks:	Evaluated as not required to be labelled.
Safety advice:	Exercise reasonable care and cleanliness.
Notification/restrictions status:	
EUROPEAN UNION (EU):	Not determined
NORWAY:	Not determined
USA:	All components of this material are on the USA TSCA inventory, or the components are exempt from inventory reporting.

16. OTHER INFORMATION

This information and these recommendations are offered in good faith and believed to be correct as of the date hereof. Information and recommendations are supplied upon the condition that the recipients will make their own decision as to safety and suitability for their purposes. No representations or warranties, either expressed or implied, of merchant ability, fitness for a particular purpose, or of any other nature, are made with respect to the product or the information and recommendations. We make no representation as to completeness or accuracy. In no event we shall be responsible for damages of any nature whatsoever resulting from the use or reliance upon the information and recommendations.

*** END OF SDS***

Safety Data Sheet

PRODUCT CODE: **KHF031L**

Effective Date: December-2023

Version: 3.0

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or preparation:

CMHPG Slurry: KHF031L

Company/undertaking identification:

OPT Chemicals Saudi Factory and Co.
Dammam 2nd Industrial City, 6th Street, 101 Intersection,
Postal code 34334, Kingdom of Saudi Arabia.
+966 56 917 2181

Emergency phone:

2. HAZARDS IDENTIFICATION

Main health hazards:

May causes skin irritation.

Main environmental hazards:

None known.

Main physical hazards:

Special precautions:

None

Physical hazard:

Not Flammable but will burn.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance	Conc. [wt.%]	CAS #
CMHPG Powder	40-60	68130-15-4
Base Oil	40-60	64742-96-7

4. FIRST AID MEASURES

Eye contact:

Flush eyes with water. If persistent irritation occurs, obtain medical attention.

Skin contact:

Remove contaminated clothes and shoes. Wash thoroughly with soap and water. Seek medical attention if irritation occurs.

Swallowing:

DO NOT induce vomiting. Transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101 oF, shortness of breath, chest congestion or continued coughing and wheezing.

Notes:

Consider gastric lavage with protected airway, administration of activated charcoal. Call a doctor or poison control center for guidance.

5. FIRE-FIGHTING MEASURES

Extinguishing media:

Water fog, CO₂, Foam, Dry chemicals.

Unsuitable extinguishing media:

Do not use water in a jet.

Further Information:

Wear protective firefighting clothing Use self-contained breathing apparatus. Keep adjacent containers cool by spraying water.

Combustion products:

see Section 10.

6. ACCIDENTAL RELEASE MEASURES

After spillage/leakage:

Use personal protective clothing. Breathing protection required. Keep from contacting skin or eyes. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safety areas. Remove all sources of ignition.

See Section 8 for protective equipment information.

See Section 13 for disposal information.

7. HANDLING AND STORAGE

Special Precautions:

Avoid breathing vapors or mist. Avoid contact with eyes, skin, or clothing. Keep containers closed when not in use. Do not expose containers to open flame, excessive heat, or direct sunlight. Keep away from sources of ignition. Do not smoke while using material. Take measures to prevent the buildup of electrostatic charge. Do not puncture or drop containers. Handle with care and avoid spillage on the floor (slippage). Keep material out of reach of children. Keep material away from incompatible materials. Wash thoroughly after handling.

Packaging requirements:

Keep container tightly closed. Avoid inhalation of vapors or mist upon opening container. Store in a well-ventilated place. Do not store at elevated temperatures. Do not store in direct sunlight. Long-standing contact with air and light may result in the formation of potentially explosive peroxides. Use caution. Store away from strong acids, strong bases, strong oxidizing agents, strong reducing agents, Amines, Halogens, reactive metals (Zinc & Aluminum) and their alloys (Brass), Alkali metals, Alkali salts, liquid Chlorine and Chlorates.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection:

Full-face vapor respirator may be required as backup to engineering controls when proper engineering controls are not in place to keep TLV and PEL limits below defined thresholds.

Eye protection:

When using material use safety goggles, gloves and apron according to HMIS PP, C. A vapor respirator according to HMIS PP, U is also strongly recommended if working with material in poorly ventilated spaces. All safety equipment should be tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Hand protection:

Chemically resistant gloves, apron and safety goggles are recommended. Type of protective equipment should be selected based on concentration amount and conditions of use of this material.

Skin protection:

Handle with gloves made from PVC, neoprene, nitrile, butyl-rubber or fluorinated-rubber. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact. Dispose of contaminated gloves according to applicable laws and laboratory practices.

Exposure Limit Guidelines (mg/m³):

Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapor.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:

Liquid

Color:

Light yellow

Odor:

Hydrocarbon

pH value:

N/A

Boiling point:

200-300°C

Pour point:

Not determined

Flash point:

80°C

Method:

Tag closed cup

Flammability (explosion limits in air):

Lower:

0.5%

Upper:	4.9%
Auto flammability (auto-ignition temperature):	232°C
Vapor pressure:	< 0.02 kPa (20°C)
Relative density (specific gravity):	1.06-1.11
Bulk density (solids):	Not applicable
Solubility in water:	Soluble
Viscosity:	Not determined
Relative vapor density (air=1):	> 5
% Volatile:	>83%

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to avoid:	Avoid heat, sparks, open flames and other ignition sources.
Materials to avoid:	Oxidizers
Hazardous polymerization:	Will not occur.
Dust explosion hazard (solids):	Not applicable
Special hazards:	None
Hazardous decomposition products:	Aldehydes, Carbon Oxides, Hydrocarbon particulate, Ketones and Organic Acids.

11. TOXICOLOGICAL INFORMATION

Eye contact:	Mildly irritating
Skin contact:	May cause moderate skin irritation. Prolonged contact may cause defatting of the skin which leads dermatitis.
Inhalation:	Low toxicity: LC50 greater than near-saturated vapor concentration.
Ingestion:	Mildly irritating LD50 (rats) = 3030 g/kg.
Carcinogenicity:	Repeated exposure may cause skin tumor promotion in experimental animals.
Mutagenicity:	Not known to cause heritable genetic damage.
Teratogenicity:	Not known to cause birth defects.
Target organs which may be affected:	None known
Sensitization:	Not known to cause allergic reaction.
Other:	None

12. ECOLOGICAL INFORMATION

Information on product as a whole:	
Main environmental hazards:	Low toxicity
Degradability:	Readily biodegradable
Other:	None known

13. DISPOSAL CONSIDERATIONS

Product:	Hazardous wastes shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution, release into the environment or damage to people and animals. Contact a licensed professional waste disposal service to dispose of this material.
Container:	Drain container thoroughly. Vent in a safe place away from sparks and fire. Residues may cause an explosion hazard if heated above the flash point. Do not puncture, cut or weld uncleaned drums. Send to drum recoveree or metal reclaimer.



14. TRANSPORT INFORMATION

US Department of Transportation Classification (49CFR)

Identification Number:	UN 1268
Proper Shipping Name:	Petroleum Distillates, n.o.s.
Class/division:	Combustible liquid
Packing group:	III
Contains:	Oil
Emergency Response Guide No:	128
Additional Information:	This material is not regulated under 49 CFR if in a container of 119-gallon capacity or less. This material is an 'OIL' under 49 CFR Part 130 when transported in a container of 3500gallon capacity or greater.
IMDG:	This material is not classified as dangerous under IMDG regulations.
IATA (Country variations may apply):	This material is not classified as dangerous under IATA regulations.

15. REGULATORY INFORMATION

This regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

Federal Regulatory Status

Notification Status

AICS	Listed	
DSL	Listed	
INV (CN)	Listed	
TSCA	Listed	
EINECS	Listed	265-150-3
KECI (KR)	Listed	KE-25622
PICCS (PH)	Listed	

SARA Hazard Categories (311/312)

Fire Hazard

Delayed (Chronic) Health Hazard

State Regulatory Status

California State Drinking water and Toxic Enforcement Act (Proposition 65)

This material does not contain any chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

16. OTHER INFORMATION

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*** END OF MSDS***