

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: **KHF003N**

Effective Date: December-2023

Version: 1.0

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

Identification of the substance or preparation:

Biocide: KHF003N

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	30-50	-
Water	50-70	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

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: **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
------------	------

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: **KHF027LV**

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 Viscosity Friction Reducer: KHF027LV

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:

Irritating to eyes. May be harmful if swallowed. Causes skin irritation if long time contact, May be Harmful if inhaled.

Main environmental hazards:

None known

Main physical hazards:

Special precautions:

None

Physical hazard:

Slick when wet.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance	Conc. [wt.%]	CAS#
Anionic Polyacrylamide	45-70	Proprietary
Hydrocarbon Solvent	30-55	Proprietary

4. FIRST AID MEASURES

Eye contact:

Draw aside the eyelids and flush eye with water or normal saline for 15 min. See doctor if necessary.

Skin contact:

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

Ingestion:

If several grams are ingested, induce vomiting and pump stomach thoroughly under guidance of doctor.

Inhalation:

This emulsion is easy to volatilize diesel vapor. Transfer the person to fresh air. If vomiting, keep respiratory tract clean. In case of respiratory difficulties use efficient respiratory assistance and see a doctor.

Notes:

None

5. FIRE-FIGHTING MEASURES

Extinguishing media:

Water, Water spray, Foam, Foam, CO₂, or sand.

Special means of fire extinction:

None

Combustion products:

See Section 10.

6. ACCIDENTAL RELEASE MEASURES

After spillage/leakage:

Scattered products can be directly removed into container for disposal; for products contacted use inert material such as sand, salt particle to absorb water and remove the materials for disposal. Thoroughly flush the contaminated area with water, brush away the residue, if ground is wet, use more scrubbing material.

Environmental Protection:

Do not directly dump the products into water for the diesel existing in the product may pollute water.

Personal Precaution:

Immediately evacuate the irrelevant people, isolate leakage

area, restrict access and cut off the combustion source. It is recommended that emergency personnel wearing respirator. Absorb small spills with activated carbon or inert materials and construct dike or dig a hole to contain large spill. Move spill into tanker or dedicated collector for recycling shipping to the disposal of waste treatment plants. Emergency workers should wear boots to avoid slip.

See Section 8 for protective equipment information.

See Section 13 for disposal information.

7. HANDLING AND STORAGE

Handling Precautions:

Avoid combustion source. Wear helmet with face screen and gloves.

Storage:

Store in tightly sealed container in dry cool and well-ventilated warehouse. Do not use iron, copper or aluminum container. Keep away from heat, sparks, flame and oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters:

Keep container tightly controlled. Contains no substances with occupational exposure limit values. Keep area well ventilated.

Respiratory protection:

Wear anti-dust respirator, wear self-contained breathing apparatus if necessary.

Skin protection:

Wear protective clothing.

Eye protection:

Chemical splash goggles.

Hand protection:

Wear chemical protection gloves.

Exposure limit guidelines (mg/m³):

No components have established exposure limits.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:

Liquid

Color:

Milky white to pale yellow

Odor:

Slight diesel vapor fume

pH value:

N/A

Decomposition temperature:

Not available

Specific gravity

1.03-1.08

Toxicity:

Low

Corrosivity:

None

Hygroscopic:

N/A

Solubility:

Soluble in water, insoluble in most organic solvents.

10. STABILITY AND REACTIVITY

Stability:

Stable

Conditions to avoid:

Not determined

Materials to avoid:

Oxides with exothermic reaction.

Hazardous polymerization:

Will not occur.

Hazardous decomposition products:

Incomplete combustion may produce poisonous gas or smoke of carbon dioxide, carbon monoxide, oxynitride, various hydrocarbons, etc.

11. TOXICOLOGICAL INFORMATION

Eye contact:

Irritating

Skin contact:

Irritating

Inhalation:

Irritating for pulmonary airway.

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 organ Systematic Toxicity: Repeated contact:	N/A
Target organ Systematic Toxicity: One-time contact	N/A
Other:	None

12. ECOLOGICAL INFORMATION

Information on product as a whole:	
Toxicity:	N/A
Persistence and Degradability:	Easy to be biodegraded.
Potential Bioaccumulation:	N/A
Mobility in Ground:	N/A

13. DISPOSAL CONSIDERATIONS

Product:	Dispose in accordance with the government and local regulations for waste disposal.
Container:	Proposed to wash the packaging for recycling or dispose in accordance with the relevant national and local regulations for waste disposal.

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

The safe use of hazardous chemicals, production, storage, transportation, and handling are made according to Dangerous Chemical Goods Safety Management Regulations (promulgated by the State Council on February 17, 1987), Implementing Rules of Dangerous Chemical Goods Safety Management Regulations ([1992] Ministry of Chemical Labor issued 677), Chemicals.

Workplace Safety Use Regulation (1996] Ministry of Labor issued 423).

OSHA Hazards:	Not classified as hazardous article according to OSHA.
USA Inventories:	All components of this product are included on the TSCA Chemical Inventory or are not required to be listed on the TSCA Chemical Inventory.
Canada Inventories:	All components of this product are included on the TSCA

Chemical Inventory or are not required to be listed on the TSCA Chemical Inventory.

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***