

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

OPTIFLO-IIIA DELAYED RELEASE BREAKER

Revision Date: 21-Sep-2015

Revision Number: 5

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product Identifier

Product Name OPTIFLO-IIIA DELAYED RELEASE BREAKER
Internal ID Code HM007526

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Breaker
Sector of use SU2 - Mining, (including offshore industries)
Product category PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents, other unspecific
Process categories PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises

1.3. Details of the supplier of the safety data sheet

Halliburton Energy Services
 Halliburton House, Howemoss Place
 Kirkhill Industrial Estate
 Dyce
 Aberdeen, AB21 0GN
 United Kingdom

www.halliburton.com

For further information, please contact

E-Mail address: fdunexchem@halliburton.com

1.4. Emergency telephone number

+44 8 08 189 0979 / 1-760-476-3961

Emergency telephone - §45 - (EC)1272/2008	
Europe	112
Croatia	Centar za kontrolu otrovanja (CKO): (+385 1) 23-48-342 (Poison Control Center (PCC) - Institute for Medical Research and Occupational Health)
Cyprus	+210 7793777
Denmark	Poison Control Hotline (DK): +45 82 12 12 12
France	ORFILA (FR): + 01 45 42 59 59
Germany	Poison Center Berlin (DE): +49 030 30686 790
Italy	Poison Center, Milan (IT): +39 02 6610 1029
Netherlands	National Poisons Information Center (NL): +31 30 274 88 88 (NB: this service is only available to health professionals)
Norway	Poisons Information (NO): + 47 22 591300
Poland	Poison Control and Information Centre, Warsaw (PL): +48 22 619 66 54; +48 22 619 08 97
Romania	+40 21 318 36 06
Spain	Poison Information Service (ES): +34 91 562 04 20
United Kingdom	NHS Direct (UK): +44 0845 46 47

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Acute Oral Toxicity	Category 4 - H302
Skin Corrosion / irritation	Category 2 - H315

Serious Eye Damage / Eye Irritation	Category 2 - H319
Respiratory Sensitization	Category 1 - H334
Skin Sensitization	Category 1 - H317
Specific Target Organ Toxicity - (Single Exposure)	Category 3 - H335
Oxidizing solids.	Category 3 - H272

2.2. Label Elements**Hazard Pictograms****Signal Word****Danger****Hazard Statements**

H272 - May intensify fire; oxidizer

H302 - Harmful if swallowed

H315 - Causes skin irritation

H317 - May cause an allergic skin reaction

H319 - Causes serious eye irritation

H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

H335 - May cause respiratory irritation

Precautionary Statements - EU (§28, 1272/2008)

P280 - Wear protective gloves/eye protection/face protection

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

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water

P304 + P341 - IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing

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

P370 + P378 - In case of fire: Use water spray for extinction

Contains**Substances**

Ammonium persulfate

CAS Number

7727-54-0

2.3. Other Hazards

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

SECTION 3: Composition/information on Ingredients**3.2. Mixtures**

Mixture

Substances	EINECS	CAS Number	PERCENT (w/w)	EU - CLP Substance Classification	REACH No.
Ammonium persulfate	231-786-5	7727-54-0	60 - 100%	Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Resp. Sens. 1 (H334) Skin Sens. 1 (H317) STOT SE 3 (H335) Ox. Sol. 3 (H272)	No data available

For the full text of the H-phrases mentioned in this Section, see Section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	If inhaled, move victim to fresh air and seek medical attention.
Eyes	In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.
Skin	In case of contact, immediately flush skin with plenty of soap and water for at least 30 minutes and remove contaminated clothing, shoes and leather goods immediately. Get medical attention immediately.
Ingestion	Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

4.2. Most Important symptoms and effects, both acute and delayed

Causes skin irritation. Causes eye irritation May cause allergic skin reaction. May cause respiratory irritation. May cause allergic respiratory reaction. Harmful if swallowed.

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

Notes to Physician Treat symptomatically

SECTION 5: Firefighting Measures**5.1. Extinguishing media****Suitable Extinguishing Media**

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

5.2. Special hazards arising from the substance or mixture**Special Exposure Hazards**

Oxidizer. May ignite combustibles. Decomposition in fire may produce harmful gases.

5.3. Advice for firefighters**Special Protective Equipment for Fire-Fighters**

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

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Use appropriate protective equipment. Avoid creating and breathing dust. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Evacuate all persons from the area.
See Section 8 for additional information

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Collect using dustless method and hold for appropriate disposal. Consider possible toxic or fire hazards associated with contaminating substances and use appropriate methods for collection, storage and disposal. Flush area with water.

6.4. Reference to other sections

See Section 8 and 13 for additional information.

SECTION 7: Handling and Storage**7.1. Precautions for Safe Handling**

Avoid contact with eyes, skin, or clothing. Wash hands after use. Launder contaminated clothing before reuse. Avoid creating or inhaling dust. Ensure adequate ventilation. Use appropriate protective equipment.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Store away from reducing agents. Store in a cool, dry location. Keep from excessive heat.

7.3. Specific End Use(s)

Exposure Scenario No information available

Other Guidelines No information available

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters

Exposure Limits

Substances	CAS Number	EU	UK	Netherlands	France
Ammonium persulfate	7727-54-0	Not applicable	1 mg/m ³	1 mg/m ³	Not applicable

Substances	CAS Number	Germany	Spain	Portugal	Finland
Ammonium persulfate	7727-54-0	Not applicable	TWA: 0.1 mg/m ³	TWA: 0.1 mg/m ³	Not applicable

Substances	CAS Number	Austria	Ireland	Switzerland	Norway
Ammonium persulfate	7727-54-0	Not applicable	0.1 mg/m ³ TWA 0.3 mg/m ³ STEL (calculated)	Not applicable	TWA: 2 mg/m ³ STEL: 4 mg/m ³

Substances	CAS Number	Italy	Poland	Hungary	Czech Republic
Ammonium persulfate	7727-54-0	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Denmark	Romania	Croatia	Cyprus
Ammonium persulfate	7727-54-0	Not applicable	Not applicable	Not applicable	Not applicable

Derived No Effect Level (DNEL)
Worker

No information available.

General Population

Predicted No Effect Concentration (PNEC)

No information available.

8.2. Exposure controls

Engineering Controls

Use in a well ventilated area.

Personal protective equipment

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

Respiratory Protection

Wear a NIOSH certified, European Standard EN 149 (FFP2/FFP3), AS/NZS 1715, or equivalent respirator when using this product.

Hand Protection

Chemical-resistant protective gloves (EN 374) Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374): Polyvinylchloride gloves. (>= 0.7 mm thickness)
This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced. Manufacturer's directions for use should be observed because of great diversity of types.

Skin Protection

Rubber apron. Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing.

Eye Protection

Chemical goggles; also wear a face shield if splashing hazard exists.

Other Precautions

None known.

Environmental Exposure Controls Do not allow material to contaminate ground water system

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Granules

Color: Off white

Odor: Mild

Odor Threshold: No information available

Property

Values

Remarks/ - Method

pH:	6.5 - 8 (1%)
Freezing Point/Range	No data available
Melting Point/Range	No data available
Boiling Point/Range	No data available
Flash Point	No data available
Flammability (solid, gas)	No data available
upper flammability limit	No data available
lower flammability limit	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.8
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%)	No data available
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SECTION 10: Stability and Reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical Stability

Stable

10.3. Possibility of Hazardous Reactions

Will Not Occur

10.4. Conditions to Avoid

Avoid contact with readily oxidizable materials.

10.5. Incompatible Materials

Contact with acids. Strong oxidizers. Avoid halogens. All flammables, especially petroleum products, asphalt & other volatile flammables. Amphoteric metals such as aluminum, magnesium, lead, tin, or zinc. Organic matter.

10.6. Hazardous Decomposition Products

Toxic fumes. Ammonia. Hydrogen chloride.

SECTION 11: Toxicological Information

11.1. Information on Toxicological Effects**Acute Toxicity****Inhalation**

May cause respiratory irritation. May cause allergic respiratory reaction.

Eye Contact

Causes eye irritation.

Skin Contact

Causes skin irritation. May cause an allergic skin reaction.

Ingestion

Harmful if swallowed. Irritation of the mouth, throat, and stomach.

Chronic Effects/Carcinogenicity

No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ammonium persulfate	7727-54-0	495 mg/kg (Rat) 700-742 mg/kg (Rat)	> 2,000 mg/kg (Rat)	520 mg/L (Rat) 1h > 2.94 mg/L (Rat) 4h

Substances	CAS Number	Skin corrosion/irritation
Ammonium persulfate	7727-54-0	Irritating to skin. (Rabbit)

Substances	CAS Number	Eye damage/irritation
Ammonium persulfate	7727-54-0	Irritating to eyes. (Rabbit)

Substances	CAS	Skin Sensitization
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	Number	
Ammonium persulfate	7727-54-0	May cause sensitization by skin contact
Substances	CAS Number	Respiratory Sensitization
Ammonium persulfate	7727-54-0	May cause sensitization by inhalation
Substances	CAS Number	Mutagenic Effects
Ammonium persulfate	7727-54-0	Did not show mutagenic effects in animal experiments
Substances	CAS Number	Carcinogenic Effects
Ammonium persulfate	7727-54-0	Did not show carcinogenic effects in animal experiments
Substances	CAS Number	Reproductive toxicity
Ammonium persulfate	7727-54-0	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.
Substances	CAS Number	STOT - single exposure
Ammonium persulfate	7727-54-0	May cause respiratory irritation.
Substances	CAS Number	STOT - repeated exposure
Ammonium persulfate	7727-54-0	No significant toxicity observed in animal studies at concentration requiring classification.
Substances	CAS Number	Aspiration hazard
Ammonium persulfate	7727-54-0	Not applicable

SECTION 12: Ecological Information

12.1. Toxicity Ecotoxicity Effects

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Ammonium persulfate	7727-54-0	EC50 (72h) 320 mg/L (Phaeodactylum tricornutum)	LC50 (96h) 103 mg/L (Lepomis macrochirus) LC50 (96h) 77.3 mg/L (Oncorhynchus mykiss) LC50 (96h) 107.6 mg/L (Scophthalmus maximus)	No information available	EC50 (48h) 120 mg/L (Daphnia magna) NOEC (5d) 11 mg/L (Abra alba)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Ammonium persulfate	7727-54-0	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Ammonium persulfate	7727-54-0	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Ammonium persulfate	7727-54-0	No information available

12.5. Results of PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT). This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

12.6. Other adverse effects**Endocrine Disruptor Information**

This product does not contain any known or suspected endocrine disruptors

SECTION 13: Disposal Considerations**13.1. Waste treatment methods****Disposal Method****Contaminated Packaging**

Disposal should be made in accordance with federal, state, and local regulations. This bag may contain residue of a hazardous material. Some authorities may regulate such containers as hazardous waste. Dispose of container according to national or local regulations.

SECTION 14: Transport Information**IMDG/IMO**

UN Number: UN1444
UN Proper Shipping Name: Ammonium Persulfate
Transport Hazard Class(es): 5.1
Packing Group: III
Environmental Hazards: Not applicable

RID

UN Number: UN1444
UN Proper Shipping Name: Ammonium Persulfate
Transport Hazard Class(es): 5.1
Packing Group: III
Environmental Hazards: Not applicable

ADR

UN Number: UN1444
UN Proper Shipping Name: Ammonium Persulfate
Transport Hazard Class(es): 5.1
Packing Group: III
Environmental Hazards: Not applicable

IATA/ICAO

UN Number: UN1444
UN Proper Shipping Name: Ammonium Persulfate
Transport Hazard Class(es): 5.1
Packing Group: III
Environmental Hazards: Not applicable

14.1. UN Number: UN1444

14.2. UN Proper Shipping Name: Ammonium Persulfate

14.3. Transport Hazard Class(es): 5.1

14.4. Packing Group: III

14.5. Environmental Hazards: Not applicable

14.6. Special Precautions for User: None

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

SECTION 15: Regulatory Information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****International Inventories****EINECS Inventory****US TSCA Inventory****Canadian DSL Inventory**

This product, and all its components, complies with EINECS
All components listed on inventory or are exempt.
All components listed on inventory or are exempt.

Legend**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List**Germany, Water Endangering
Classes (WGK)**

WGK 1: Low hazard to waters.

15.2. Chemical Safety Assessment

No information available

SECTION 16: Other Information**Full text of H-Statements referred to under sections 2 and 3**

H272 - May intensify fire; oxidizer

H302 - Harmful if swallowed

H315 - Causes skin irritation

H317 - May cause an allergic skin reaction

H319 - Causes serious eye irritation

H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

H335 - May cause respiratory irritation

Key or legend to abbreviations and acronyms

bw – body weight

CAS – Chemical Abstracts Service

CLP – REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Classification, Labelling and Packaging of substances and mixtures

EC – European Commission

EC10 – Effective Concentration 10%

EC50 – Effective Concentration 50%

EEC – European Economic Community

ErC50 – Effective Concentration growth rate 50%

IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk

LC50 – Lethal Concentration 50%

LD50 – Lethal Dose 50%

LL0 – Lethal Loading 0%

LL50 – Lethal Loading 50%

MARPOL – International Convention for the Prevention of Pollution from Ships

mg/kg – milligram/kilogram

mg/L – milligram/liter

NIOSH – National Institute for Occupational Safety and Health

NOEC – No Observed Effect Concentration

NTP – National Toxicology Program

OEL – Occupational Exposure Limit

PBT – Persistent Bioaccumulative and Toxic

PC – Chemical Product category

PEL – Permissible Exposure Limit

ppm – parts per million

PROC – Process category

REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals

STEL – Short Term Exposure Limit

SU – Sector of Use category

Key literature references and sources for data

www.ChemADVISOR.com/

ECHA C&L

OSHA

Revision Date:

21-Sep-2015

Revision Note

SDS sections updated: 1

This safety data sheet complies with the requirements of Regulation (EC) No. 453/2010**Disclaimer Statement**

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End of Safety Data Sheet