HALLIBURTON

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

STARCIDE®

Revision Date: 10-Nov-2015 **Revision Number:** 46

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

1.1. Product Identifier

Product Name STARCIDE®
Internal ID Code HM003388

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

Recommended Use Bactericide
Sector of use SU2 - Mining, (including offshore industries)
Product category PC8 - Biocidal Products (e.g. Disinfectants, pest control)
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 Manufacturing Services, Ltd.
Halliburton House, Howemoss Crescent
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)
Acute Inhalation Toxicity - Dusts and Mists	Category 4 - (H332)
Skin Corrosion / irritation	Category 1 - (H314)

2.2. Label Elements

Hazard Pictograms

Signal Word **Danger**

Hazard Statements
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H332 - Harmful if inhaled

Precautionary Statements - EU (§28, 1272/2008)
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P310 - Immediately call a POISON CENTER or doctor/physician
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Contains

Substances	**CAS Number**
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2

Special Labelling of certain mixtures Use biocides safely. Always read the label and product information before use.

2.3. Other Hazards

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).

SECTION 3: Composition/information on Ingredients

3.1. Substances

Substance

Substances	EINECS	CAS Number	PERCENT (w/w)	EU - CLP Substance Classification	REACH No.
3, 3'-Methylene bis (5-methyl oxazolidine)	266-235-8	66204-44-2	60 - 100%	Acute Tox. 4 (H302) Acute Tox. 4 (H332) Skin Corr. 1C (H314) Eye Corr. 1 (H318)	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 Immediately flush eyes with large amounts of water for at least 30 minutes. Seek prompt medical attention.

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
May cause eye and skin burns. Harmful if swallowed. Toxic if inhaled.

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
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 contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation. Evacuate all persons from the area.
See Section 8 for additional information

6.2. Environmental precautions
Prevent from entering sewers, waterways, or low areas. Consult local authorities.

6.3. Methods and material for containment and cleaning up
Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

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. Avoid breathing vapors. Avoid breathing mist. Ensure adequate ventilation. Do NOT consume food, drink, or tobacco in contaminated areas. Wash hands after use. Launder contaminated clothing before reuse. 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 in original container Store away from oxidizers. Store away from acids. Store in a cool well ventilated area. Keep container closed when not in use. Product has a shelf life of 12 months. Keep Away From Food

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
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Germany	Spain	Portugal	Finland
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Austria	Ireland	Switzerland	Norway
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Italy	Poland	Hungary	Czech Republic
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Denmark	Romania	Croatia	Cyprus
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	Not applicable	Not applicable	Not applicable	Not applicable

Hazardous Decomposition Products	Formaldehyde
EU	Not applicable
UK	STEL: 2 ppm STEL: 2.5 mg/m³ TWA: 2 ppm TWA: 2.5 mg/m³
Netherlands	TWA: 0.15 mg/m³ STEL: 0.5 mg/m³
France	TWA [VME]: 0.5 ppm
Germany	MAK: 0.3 ppm MAK: 0.37 mg/m³
Spain	0.3 ppm VLA-EC 0.37 mg/m³ VLA-EC
Portugal	0.3 ppm Ceiling
Finland	STEL: 1 ppm STEL: 1.2 mg/m³ TWA: 0.3 ppm TWA: 0.37 mg/m³
Austria	TWA [TMW]: 0.5 ppm TWA [TMW]: 0.6 mg/m³ STEL [KZW]: 0.5 ppm STEL [KZW]: 0.6 mg/m³
Ireland	TWA: 2 ppm TWA: 2.5 mg/m³ STEL: 2 ppm STEL: 2.5 mg/m³
Switzerland	TWA [MAK]: 0.3 ppm TWA [MAK]: 0.37 mg/m³ STEL [KZW]: 0.6 ppm STEL [KZW]: 0.74 mg/m³
Norway	STEL: 1.5 ppm STEL: 1.8 mg/m³ TWA: 0.5 ppm TWA: 0.6 mg/m³
Italy	0.3 ppm Ceiling 0.37 mg/m³ Ceiling
Romania	TWA: 1.2 mg/m³ TWA: 1 ppm STEL: 3 mg/m³ STEL: 1 ppm
Poland	NDSCh: 1 mg/m³ NDS: 0.5 mg/m³
Hungary	TWA: 0.6 mg/m³ STEL: 0.6 mg/m³
Czech Republic	TWA: 0.5 mg/m³
Denmark	0.3 ppm Ceiling 0.4 mg/m³ Ceiling

Derived No Effect Level (DNEL) No information available.

Worker

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

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): Nitrile gloves. Butyl rubber 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 Wear impervious protective clothing, including boots, gloves, lab coat, apron, rain jacket, pants or coverall, as appropriate, to prevent skin contact.

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

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

Environmental Exposure Controls Do not flush into surface water or sanitary sewer system Avoid subsoil penetration

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Liquid **Color:** Colorless to slight yellow

Odor: Sweet amine **Odor Threshold:** No information available

Property	Values	Remarks/ - Method
pH:	10 (0.15%)	
Freezing Point/Range	No data available	
Melting Point/Range	< -35 °C / -31 °F	
Boiling Point/Range	204 °C / 399.2 °F	
Flash Point	> 100 °C / > 212 °F	PMCC
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	1.05	
Water Solubility	Soluble in water	
Solubility in other solvents	benzene heptane	
Partition coefficient: n-octanol/water	1.89	
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
Viscosity	19 mPa/s @ 20°C	
Explosive Properties	No information available	
Oxidizing Properties	No information available	

9.2. Other information

Molecular Weight	186.25
VOC Content (%)	No data available

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

None anticipated

10.5. Incompatible Materials

Strong oxidizers. Strong acids. Reducing agents.

10.6. Hazardous Decomposition Products

Formaldehyde. Oxides of nitrogen. Oxides of sulfur.

SECTION 11: Toxicological Information

11.1. Information on Toxicological Effects

Acute Toxicity

Inhalation	Toxic by inhalation. May cause respiratory irritation.
Eye Contact	Causes eye burns.
Skin Contact	Causes severe burns.
Ingestion	Harmful if swallowed.

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
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	900 mg/kg (Rat)	1207 - 1620 mg/kg (Rat)	2 mg/L (Rat, mist) 4h

Substances	CAS Number	Skin corrosion/irritation
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	Causes severe irritation and or burns (Rabbit)

Substances	CAS Number	Eye damage/irritation
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	Causes severe irritation and or burns (Rabbit)

Substances	CAS Number	Skin Sensitization
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	Did not cause sensitization on laboratory animals (guinea pig)

Substances	CAS Number	Respiratory Sensitization
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	No information available

Substances	CAS Number	Mutagenic Effects
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	Not mutagenic in AMES Test. In vitro tests did not show mutagenic effects In vivo tests did not show mutagenic effects.

Substances	CAS Number	Carcinogenic Effects
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	Did not show carcinogenic effects in animal experiments

Substances	CAS Number	Reproductive toxicity
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.

Substances	CAS Number	STOT - single exposure
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	STOT - repeated exposure
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	Aspiration hazard
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	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
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	EC50(72h): 5.7 mg/L (Desmodesmus subspicatus)	LC50(96h): 57.7 mg/L (Brachidanio rerio)	EC50: 44 mg/L (activated sludge)	EC50(48h): 37.9 mg/L (Daphnia magna)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	Readily biodegradable (69.4% @ 28d)

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	-0.3 @ 25 C

12.4. Mobility in soil

Substances	CAS Number	Mobility
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	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).

Substances	PBT and vPvB assessment
3, 3'-Methylene bis (5-methyl oxazolidine)	Not PBT/vPvB

12.6. Other adverse effects

Does not contain any organically bound halogen. May not increase the AOX value when discharged from treatment plants or into natural waters.

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 Disposal should be made in accordance with federal, state, and local regulations. Incineration recommended in approved incinerator according to federal, state, and local regulations. Substance should NOT be deposited into a sewage facility.

Contaminated Packaging Follow all applicable national or local regulations.

SECTION 14: Transport Information

IMDG/IMO

UN Number: UN2735

UN Proper Shipping Name:	Amines, Liquid, Corrosive, N.O.S. (Contains N, N' -Methylenebis[5-methyl oxazolidine])
Transport Hazard Class(es):	8
Packing Group:	III
Environmental Hazards:	Not applicable
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:	Exempt

RID

UN Number:	UN2735
UN Proper Shipping Name:	Amines, Liquid, Corrosive, N.O.S. (Contains N, N' -Methylenebis[5-methyl oxazolidine])
Transport Hazard Class(es):	8
Packing Group:	III
Environmental Hazards:	Not applicable

ADR

UN Number:	UN2735
UN Proper Shipping Name:	Amines, Liquid, Corrosive, N.O.S. (Contains N, N' -Methylenebis[5-methyl oxazolidine])
Transport Hazard Class(es):	8
Packing Group:	III
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number:	UN2735
UN Proper Shipping Name:	Amines, Liquid, Corrosive, N.O.S. (Contains N, N' -Methylenebis[5-methyl oxazolidine])
Transport Hazard Class(es):	8
Packing Group:	III
Environmental Hazards:	Not applicable

14.1. UN Number: UN2735

14.2. UN Proper Shipping Name: Amines, Liquid, Corrosive, N.O.S. (Contains N, N' -Methylenebis[5-methyl oxazolidine])

14.3. Transport Hazard Class(es): 8

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: Exempt

SECTION 15: Regulatory Information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

International Inventories

EINECS Inventory	This product, and all its components, complies with EINECS
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian DSL Inventory	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
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage

H318 - Causes serious eye damage
H332 - Harmful if inhaled

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/
NZ CCID

Revision Date: 10-Nov-2015
Revision Note
SDS sections updated: 2

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

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

End of Safety Data Sheet