Safety data sheet number MI10318
Version 5
Revision date 03/Sep/2014
Supercedes date 03/Feb/2010

Safety Data Sheet
PIPE-LAX† W EH

1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product identifier

Product name PIPE-LAX† W EH
Product code MI10318

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

Recommended use Stuck Pipe Additive.

Uses advised against None known.

1.3 Details of the supplier of the safety data sheet

Supplier identification
M-I Drilling Fluids UK Limited
C/O Schlumberger
Enterprise Drive
Westhill Industrial Estate
Westhill, AB32 6TQ
Scotland UK
+47 51577424
MISDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards identification

2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Health hazards

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Skin sensitisation	Category 1
Specific target organ toxicity (single exposure)	Category 3

Environmental hazards

Chronic aquatic toxicity	Category 3

Physical Hazards

Flammable Liquids	Category 3

2.2 Label Elements

Signal word
DANGER

Hazard statements
H226 - Flammable liquid and vapor
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H335 - May cause respiratory irritation
H336 - May cause drowsiness or dizziness
H412 - Harmful to aquatic life with long lasting effects
H226 - Flammable liquid and vapor
EU specific hazard statements
EUH066 - Repeated exposure may cause skin dryness or cracking

Precautionary Statements - EU (§28, 1272/2008)
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P280 - Wear protective gloves/protective clothing and eye/face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/ physician
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P501 - Dispose of contents/container in accordance with local regulations.

Supplementary precautionary statements
P233 - Keep container tightly closed
P261 - Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P273 - Avoid release to the environment
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P332 + P313 - If skin irritation occurs: Get medical advice/ attention
P362 - Take off contaminated clothing and wash before re-use
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Indication of danger
FLAMMABLE
Xi - Irritant
N - Dangerous for the environment

R-code(s)
R10, R37/38, R43 R66, R67, R51

Contains

2-methylpropan-1-ol

Alkenes, C11-12, hydroformylation products, low boiling

Rosin

2,2'-oxydiethanol

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16.

2.3 Other data

Not classified as PBT/vPvB by current EU criteria

3. Composition/information on ingredients

3.1 Substances

Not Applicable

3.2 Mixtures

Component	EC-No.	CAS-No	Weight % - range	Classification (67/548)	Classification (Reg. 1272/2008)	REACH registration number
2-methylpropan-1-ol	201-148-0	78-83-1	10-30	R10 Xi;R37/38-41 R67	Skin Irrit. 2 (H315) Eye Dam. 1 (H318) STOT SE 3 (H335) STOT SE 3 (H336) Flam. Liq. 3 (H226)	01-2119484609-23-xxxx
Alkenes, C11-12, hydroformylation products, low boiling	932-235-8	*	10-30	Xi; R36, 65, 66 N; R51	Eye Irrit. 2 (H319) Asp. Tox. 1 (H304) Aquatic Chronic 2 (H411) EUH066	01-2119561658-26-xxxx
Rosin	232-475-7	8050-09-7	1-5	Xi; R43	Skin Sens. 1 (H317)	No data available
2,2'-oxydiethanol	203-872-2	111-46-6	<1	Xn; R22	Acute Tox. 4 (H302) STOT RE. 2 (H373)	01-2119457857-21-xxxx

Comments
The product contains other ingredients which do not contribute to the overall classification. The viscosity of this product is high enough that it is not an aspiration risk and the R65/H304 phrase does not apply. *Substances which have an EC Number that begins with the number "9" is a Provisional List Number. The list numbers published by ECHA do not have any legal significance. The EC substance definition and related classification & labelling has been developed in the framework of the Regulation (EC) No 1907/2006 (REACH). For information about the related CAS number see section 15 of this SDS.

4. First aid measures

4.1 Description of first-aid measures

Inhalation Move the exposed person to fresh air at once. If breathing is difficult, (trained personnel should) give oxygen. Get medical attention immediately if symptoms occur.

Ingestion Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Seek medical attention if irritation occurs.

Skin contact Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention immediately if symptoms occur.

Eye contact Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first five minutes, then continue rinsing eye. Seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Main symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water spray, dry chemical, carbon dioxide (CO_2), or foam.

Extinguishing media which shall not be used for safety reasons
None known.

5.2 Special hazards arising from the substance or mixture

Precautions against fire and explosion
FLAMMABLE.

Hazardous combustion products
Thermal decomposition can lead to release of irritating gases and vapours.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Remove all sources of ignition. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up

Methods for Containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Take precautionary measures against static discharges. Absorb with earth, sand or other non-combustable material and transfer to containers for later disposal. Use clean non-sparking tools to collect absorbed material. Ground and bond containers when transferring material. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use.

Hygiene measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands before eating, drinking or smoking. Remove contaminated clothing.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Keep airborne concentrations below exposure limits.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition Keep away from direct sunlight Avoid contact with: Strong oxidising agents

Storage class Flammable liquid storage.

Packaging material Use specially constructed containers only

7.3 Specific end uses

See also Section 1.2.

8. Exposure controls/personal protection

8.1 Control parameters

Component	EU OEL - Third List	Austria	Australia	Denmark
2-methylpropan-1-ol	Not determined	Not determined	50 ppm TWA; 152 mg/m³ TWA	50 ppm Ceiling Butanol, isomers 150 mg/m³ Ceiling Butanol, isomers Potential for cutaneous absorption (listed under Butanol, all isomers)
Alkenes, C11-12, hydroformylation products, low boiling	Not determined	Not determined	Not determined	Not determined
Rosin	Not determined	Not determined	0.1 mg/m³ TWA (as formaldehyde)	Not determined
2,2'-oxydiethanol	Not determined	Not determined	23 ppm TWA; 100 mg/m³ TWA	2.5 ppm TWA 11 mg/m³ TWA

Component	Finland	France	Germany	Hungary
2-methylpropan-1-ol	Not determined	50 ppm 150 mg/m³	100 ppm MAK 310 mg/m³ MAK	Not determined
Alkenes, C11-12, hydroformylation products, low boiling	Not determined	Not determined	Not determined	Not determined
Rosin	Not determined	0.1 mg/m³	Not determined	Not determined
2,2'-oxydiethanol	Not determined	Not determined	10 ppm MAK 44 mg/m³ MAK	Not determined

Component	New Zealand	Italy	Netherlands	Norway
2-methylpropan-1-ol	50 ppm TWA 152 mg/m³ TWA	Not determined	Not determined	25 ppm Ceiling; 75 mg/m³ Ceiling Skin
Alkenes, C11-12, hydroformylation products, low boiling	Not Determined	Not determined	Not determined	Not determined

Rosin	Not Determined	Not determined	Not determined	Not determined
2,2'-oxydiethanol	23 ppm TWA 101 mg/m³ TWA	Not determined	Not determined	Not determined

Component	Poland	Portugal	Romania	Russia
2-methylpropan-1-ol	200 mg/m³ STEL Skin 100 mg/m³ TWA	50 ppm TWA	Not determined	10 mg/m³ MAC
Alkenes, C11-12, hydroformylation products, low boiling	Not determined	Not determined	Not determined	Not determined
Rosin	Not determined	Not determined	Not determined	4 mg/m³ MAC Allergenic substance
2,2'-oxydiethanol	10 mg/m³ TWA aerosol	Not determined	Not determined	10 mg/m³ MAC (aerosol and vapor)

Component	Spain	Switzerland	Turkey	UK
2-methylpropan-1-ol	50 ppm VLA-ED 154 mg/m³ VLA-ED	50 ppm STEL 15 min 150 mg/m³ STEL 15 min 50 ppm MAK 150 mg/m³ MAK	Not determined	75 ppm STEL 231 mg/m³ STEL 50 ppm TWA 154 mg/m³ TWA
Alkenes, C11-12, hydroformylation products, low boiling	Not determined	Not determined	Not determined	Not determined
Rosin	Not determined	Not determined	Not determined	Not determined
2,2'-oxydiethanol	Not determined	40 ppm STEL (KZW): 176 mg/m³ STEL (KZW)	Not determined	69 ppm STEL calculated 303 mg/m³ STEL calculated 23 ppm TWA 101 mg/m³ TWA

Derived No Effect Level (DNEL)

Long term exposure local effects

2-methylpropan-1-ol

Inhalation	310 mg/m³

Alkenes, C11-12, hydroformylation products, low boiling

Dermal	125 mg/kg
Inhalation	220 mg/m³

Long term exposure systemic effects

Alkenes, C11-12, hydroformylation products, low boiling

Dermal	44 mg/kg
Inhalation	220 mg/m³

Rosin

Dermal	17 mg/kg
Inhalation	117 mg/m³

2,2'-oxydiethanol

Dermal	106 mg/kg bw/day
Inhalation	60 mg/m³

Predicted No Effect Concentration (PNEC)

2-methylpropan-1-ol	
Fresh Water	0.4 mg/l
Sea Water	0.04 mg/l
Fresh water sediment	1.52 mg/kg
Sea sediment	0.152 mg/kg
Soil	0.0699 mg/kg
Impact on Sewage Treatment	10 mg/l
Intermittent release	11 mg/l
Alkenes, C11-12, hydroformylation products, low boiling	
Fresh Water	0.0028 mg/L
Sea Water	0.0028 mg/L
Impact on Sewage Treatment	1.12 mg/L
Rosin	
Fresh Water	0.0016 mg/l
Sea Water	0.00016 mg/l
Fresh water sediment	0.007 mg/kg
Sea sediment	0.0007 mg/kg
Soil	0.00045 mg/kg
Impact on Sewage Treatment	1000 mg/l
Intermittent release	0.016 mg/l
2,2'-oxydiethanol	
Fresh Water	10 mg/l
Sea Water	1 mg/l
Fresh water sediment	20.9 mg/kg sediment dw
Sea sediment	2.09 mg/kg sediment dw
Soil	1.53 mg/kg soil dw
Impact on Sewage Treatment	199.5 mg/L
Intermittent release	10 mg/l

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure
Ensure adequate ventilation. Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection	It is good practice to wear goggles when handling any chemical. Tightly fitting safety goggles.
Hand protection	Use protective gloves made of:, Neoprene, Rubber, Viton, PVC, Be aware that liquid may penetrate the gloves. Frequent change is advisable.
Respiratory protection	In case of insufficient ventilation wear suitable respiratory equipment, Use respirator with organic vapor protection (A, brown).
Skin and body protection	Wear suitable protective clothing, Eye wash and emergency shower must be available at the work place.
Hygiene measures	Wash hands before eating, drinking or smoking, Remove and wash contaminated clothing before re-use.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Oily
Odour	pungent
Colour	Brown
Odor threshold	Not applicable

Property	**Values**	**Remarks**
pH	Not applicable	
pH @ dilution	6 - 9	(50 g/l IPA/water 75/25)
Melting/freezing point	No information available	
Boiling point/range	No information available	
Flash Point	~29 °C / ~84 °F	PMCC
Evaporation rate		
Flammability (solid, gas)	Not Applicable	
Flammability Limits in Air		
Upper flammability Limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	1.0 - 1.1 sg	20 °C
Bulk density	No information available	
Relative density	No information available	
Water solubility	Insoluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	> 20.5 cSt @ 40 °C	
Viscosity, dynamic	No information available	
Log Pow	Not determined	

Explosive properties	Not Applicable
Oxidizing properties	None known.

9.2 Other information

Pour point	< 0°C (32°F)
Molecular weight	No information available
VOC content(%)	None
Density VALUE	0.94 - 0.98 g/ml @ 20°C

10. Stability and reactivity

10.1 Reactivity

FLAMMABLE.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerisation does not occur.

10.4 Conditions to avoid

Avoid heat, flames and other sources of ignition.

10.5 Incompatible materials

Strong oxidising agents.

10.6 Hazardous decomposition products

See also section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation May cause drowsiness or dizziness. May cause respiratory irritation.

Eye contact Causes serious eye irritation.

Skin contact May cause an allergic skin reaction. Causes skin irritation. May be absorbed through the skin in harmful amounts.

Ingestion Ingestion may cause stomach discomfort.

Acute toxicity .

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
2-methylpropan-1-ol	= 2460 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 6.5 mg/L (Rat) 4 h
Alkenes, C11-12, hydroformylation products, low boiling	No data available	No data available	No data available
Rosin	= 3 mg/kg (Rat)	> 2500 mg/kg (Rabbit)	No data available
2,2'-oxydiethanol	= 12565 mg/kg (Rat)	= 11890 mg/kg (Rabbit)	No data available

Sensitisation May cause sensitization by skin contact.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity None known.

Routes of exposure Eye contact. Skin contact.

Routes of entry Eye contact. Skin contact.

Specific target organ toxicity (single exposure) Category 3

Specific target organ toxicity (repeated exposure) Not classified.

Target organ effects None known.

Aspiration hazard The viscosity of this product is high enough that it is not an aspiration risk and the R65/H304 phrase does not apply.

12. Ecological information

12.1 Toxicity

Harmful to aquatic life with long lasting effects

Toxicity to algae
This product is not considered toxic to algae. See component information below.

Toxicity to fish
This product is not considered toxic to fish. See component information below.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates. See component information below.

Component	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
2-methylpropan-1-ol	1120 - 1520 mg/L LC50 (Oncorhynchus mykiss) = 96 h 1370 - 1670 mg/L LC50 (Pimephales promelas) = 96 h 1480 - 1730 mg/L LC50 (Lepomis macrochirus) = 96 h 375 mg/L LC50 (Pimephales promelas) = 96 h	230 mg/L EC50 (Desmodesmus subspicatus) = 48 h	1300 mg/L EC50 (Daphnia magna) = 48 h 1070 - 1933 mg/L EC50 (Daphnia magna) = 48 h
Alkenes, C11-12, hydroformylation products, low boiling	No information available	No information available	No information available

Rosin	No information available	400 mg/L EC50 (Desmodesmus subspicatus) = 72 h	3.8 - 5.4 mg/L EC50 (Daphnia magna) = 48 h
2,2'-oxydiethanol	75200 mg/L LC50 (Pimephales promelas) = 96 h	No information available	84000 mg/L EC50 (Daphnia magna) = 48 h

12.2 Persistence and degradability

No information available.

12.3 Bioaccumulative potential

No information available.

12.4 Mobility in soil

Mobility
Insoluble in water.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues / unused products — Dispose of in accordance with local regulations.

Contaminated packaging — Empty containers should be transported/delivered using a registered waste carrier for local recycling or waste disposal.

EWC waste disposal No. — According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: EWC waste disposal No: 07 01 04 Waste Code: 7152 Organic waste without halogen.

14. Transport information

14.1 UN number

UN/ID No. (ADR/RID/ADN/ADG)	UN 1212
UN No. (IMDG)	UN 1212
UN No. (ICAO)	UN 1212

14.2 Proper shipping name
FLAMMABLE LIQUID, N.O.S. (ISOBUTANOL SOLUTION)

14.3. Hazard class(es)

ADR/RID/ADN Hazard class	3
IMDG Hazard class	3
ICAO Hazard class/division	3

14.4 Packing group

ADR/RID/ADN Packing Group	III
IMDG Packing group	III
ICAO Packing group	III

14.5 Environmental hazard
No

14.6 Special precautions

Hazard ID	30
EmS (IMDG)	F-E, S-D
Emergency action code	•3Y
Tunnel restriction code	(D/E)

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Please contact MISDS@slb.com for info regarding transport in Bulk.

15. Regulatory information

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

Australian Standard for the Uniform Scheduling of Drugs and Poisons

2,2'-oxydiethanol
Schedule 6
Schedule 5

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.

International inventories

USA, Toxic Substances Control Act inventory (TSCA)	Does not Comply
European Union - EINECS and ELINCS	Complies
Canada, Domestic Substance List (DSL)	Does not Comply
Philippines (PICCS)	Does not Comply
Inventory - Japan - Existing and New Chemicals list	Does not Comply
China (IECSC)	Does not Comply
Australia (AICS)	Does not Comply
Korea (KECL)	Does not Comply
Inventory - New Zealand - Inventory of Chemicals (NZIoC)	Does not Comply

Contact REACH@miswaco.slb.com for REACH information. CAS Number 97552-94-8 can be used to identify the substance given a list number in section 3 in areas not subject to the REACH regulation.

15.2 Chemical Safety Report

No information available

16. Other information

Prepared by	Global Chemical Regulatory Compliance (GCRC) , Anne Karin (Anka) Fosse
Supercedes date	03/Feb/2010
Revision date	03/Sep/2014
Version	5
The following sections have been revised	This SDS have been made in a new database and therefore a new layout. There have been changes with regard to classification, Updated according to GHS/CLP.

Text of R phrases mentioned in Section 3
R10 - Flammable
R22 - Harmful if swallowed
R36 - Irritating to eyes
R41 - Risk of serious damage to eyes
R43 - May cause sensitization by skin contact
R51 - Toxic to aquatic organisms
R65 - Harmful: may cause lung damage if swallowed
R66 - Repeated exposure may cause skin dryness or cracking
R67 - Vapors may cause drowsiness and dizziness

R37/38 - Irritating to respiratory system and skin

Full text of H-Statements referred to under sections 2 and 3

H226 - Flammable liquid and vapor
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H335 - May cause respiratory irritation
H336 - May cause drowsiness or dizziness
H412 - Harmful to aquatic life with long lasting effects
H302 - Harmful if swallowed
H304 - May be fatal if swallowed and enters airways
H319 - Causes serious eye irritation
H411 - Toxic to aquatic life with long lasting effects
H373 - May cause damage to organs through prolonged or repeated exposure if swallowed
EUH066 - Repeated exposure may cause skin dryness or cracking

Disclaimer
The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.