

SDS no. PID18381  
Version 2  
Revision date 16/Mar/2018  
Supersedes date 15/May/2015



## Safety Data Sheet RHEFLAT\* PLUS

### 1. Identification of the Substance/Preparation and of the Company/Undertaking

#### 1.1 Product identifier

**Product name** RHEFLAT\* PLUS  
**Product code** PID18381  
**Country Limitations** This product may not be distributed or used in Canada.

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

**Recommended Use** Viscosifier.  
**Uses advised against** Consumer use

#### 1.3 Details of the supplier of the safety data sheet

**Supplier**  
**M-I L.L.C.**  
P.O.Box 42842  
Houston, TX 77242  
www.miswaco.slb.com  
Telephone: 1 281-561-1511

**Schlumberger Serviços de Petróleo LTDA**  
Rua Internacional 500Cavaleiro – Macaé, RJ. CEP: 27.930-075  
Telephone: +55 22 3311-7051

**E-mail address** SDS@slb.com

**Prepared by**  
Global Regulatory Compliance - Chemicals (GRC - Chemicals)

#### 1.4 Emergency Telephone Number

**Emergency telephone** (24 Hour) Asia Pacific +65 3158 1074, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, USA +1 281 561 1600, Canada +1 800 579 7421, Argentina: +54 11 5984 3690, Brazil : 0800-720-8000/0800-777-2323 (WGRA)

### 2. Hazards Identification

#### 2.1 Classification of the substance or mixture

##### GHS - Classification

##### Health hazards

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1

Skin sensitization	Category 1
Carcinogenicity	Category 2

**Environmental hazards** Not classified

**Physical Hazards** Not classified

**2.2 Label elements**



**Signal word**

DANGER

**Hazard Statements**

- H315 - Causes skin irritation
- H317 - May cause an allergic skin reaction
- H318 - Causes serious eye damage
- H351 - Suspected of causing cancer

**Precautionary statements**

- P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
- P280 - Wear protective gloves 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

- P201 - Obtain special instructions before use
- P202 - Do not handle until all safety precautions have been read and understood
- P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
- P264 - Wash face, hands and any exposed skin thoroughly after handling
- P272 - Contaminated work clothing should not be allowed out of the workplace
- P273 - Avoid release to the environment
- P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
- P308 + P313 - IF exposed or concerned: Get medical advice/attention
- P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
- P362 - Take off contaminated clothing and wash before reuse
- P391 - Collect spillage
- P403 + P235 - Store in a well-ventilated place. Keep cool
- P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish
- P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

**Hazards not otherwise classified**

None known

**Unknown acute toxicity** Not applicable.

**3. Composition/information on Ingredients**

**3.1 Substances**

Not applicable

### 3.2 Mixtures

Chemical Name	CAS No	Weight-%
Polyamide	Proprietary	60 - 100
2-(2-Butoxyethoxy)ethanol	112-34-5	30 - 60
2,2'-Iminodiethanol (impurity)	111-42-2	0.1 - 1
Triethylenetetramine (impurity)	112-24-3	0.1 - 1

#### Comments

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret

## 4. First Aid Measures

### 4.1 First aid measures

<b>Inhalation</b>	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
<b>Ingestion</b>	If swallowed, call a poison control center or doctor immediately. Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Seek medical attention.
<b>Skin contact</b>	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention immediately if symptoms occur.
<b>Eye Contact</b>	Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if present and easy to do. Continue rinsing. 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. Seek medical attention for all burns, regardless how minor they may seem.

#### Symptoms

<b>Inhalation</b>	Please see Section 11. Toxicological Information for further information.
<b>Ingestion</b>	Please see Section 11. Toxicological Information for further information.
<b>Skin contact</b>	Please see Section 11. Toxicological Information for further information.
<b>Eye contact</b>	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

Use extinguishing media appropriate for surrounding material.

**Extinguishing media which must not be used for safety reasons**

Do not use water jet.

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

**Unusual fire and explosion hazards**

Heating of containers may cause pressure rise, with risk of bursting.

**Hazardous combustion products**

Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke), Nitrogen oxides (NO<sub>x</sub>).

**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. See also section 8. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Extinguish all ignition sources. Avoid sparks, flames, heat and smoking.

**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 material 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**

Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local/national regulations (see Section 13). Take precautionary measures against static discharges.

**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. Do not handle until all safety precautions have been read and understood. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use. Wear personal protective equipment. Persons susceptible to allergic reactions should not handle this product. Take precautionary measures against static discharges.

**7.2 Conditions for safe storage, including any incompatibilities**

**Technical measures/precautions**

Ensure adequate ventilation. Keep airborne concentrations below exposure limits. Use spark-proof tools and explosion-proof equipment.

**Storage precautions**

Keep containers tightly closed in a dry, cool and well-ventilated place. Avoid contact with: Strong oxidizing agents Follow safe warehousing practices regarding palletizing, banding, shrink-wrapping and/or stacking.

**Packaging materials**

Use specially constructed containers only.

**8. Exposure Controls/Personal Protection**

**8.1 Control parameters**

Component Information

Chemical Name	ACGIH TLV	OSHA PEL	Argentina - Occupational Exposure Limits - TWAs (CMPs)	Brazil - Occupational Exposure Limits - TWAs (LTs)	Mexico - Occupational Exposure Limits - TWAs (LMPE-PPTs)
Polyamide	Not determined	Not determined	Not determined	Not determined	Not determined
2-(2-Butoxyethoxy)ethanol	10 ppm	Not determined	Not determined	Not determined	Not determined
2,2'-Iminodiethanol (impurity)	1 mg/m <sup>3</sup>	Not determined	2 mg/m <sup>3</sup> TWA	Not determined	Not determined
Triethylenetetramine (impurity)	Not determined	Not determined	Not determined	Not determined	Not determined

**IDLH (Immediately Dangerous to Life or Health)**

Immediately Dangerous to Life or Health (IDLH) is established by the US National Institute for Occupational Safety and Health (NIOSH). The purpose of establishing an IDLH value is to ensure that the worker can escape from a given contaminated environment in the event of failure of the most protective respiratory protection equipment. In the event of failure of respiratory protection equipment every effort should be made to exit immediately.

Chemical Name	IDLH (Immediately Dangerous to Life or Health)
Polyamide	-
2-(2-Butoxyethoxy)ethanol 112-34-5	-
2,2'-Iminodiethanol (impurity) 111-42-2	-
Triethylenetetramine (impurity) 112-24-3	-

**8.2 Exposure controls**

A risk assessment is recommended to be performed by a qualified and trained personnel to analyze the worksite and recommends the appropriate controls such as engineering controls, work practice controls, and administrative controls as primary means of reducing employee exposure. When there is a remaining hazards after applying the primary controls, Personal Protective Equipment (PPE) must be used.

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 Controls**

Ensure adequate ventilation. Local exhaust ventilation. Keep airborne concentrations below exposure limits. Apply technical measures to comply with the occupational exposure limits.

**Personal protective equipment**

**Eye protection**

Tightly fitting safety goggles.

**Hand protection**

Impervious gloves made of: Neoprene Nitrile Butyl

Break through time >480 minutes

Glove thickness >=0.5 mm

<b>Respiratory Protection</b>	Be aware that liquid may penetrate the gloves. Frequent change is advisable. All respiratory protection equipment should be used within a comprehensive respiratory protection program that meets the requirements of 29 CFR 1910.134 (U.S. OSHA Respiratory Protection Standard) or local equivalent. If exposed to airborne mist/aerosol of this product, use an organic vapor cartridge with a P-95 pre-filter attached. In work environments containing oil mist/aerosol, use an organic vapor cartridge with a P-95 pre-filter attached. If exposed to vapors from this product, use a NIOSH/MSHA-approved respirator with an organic vapor cartridge.
<b>Skin and body protection</b>	Wear suitable protective clothing, Eye wash and emergency shower must be available at the work place.
<b>Hygiene Measures</b>	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

<b>Physical state</b>	Liquid
<b>Appearance</b>	No information available
<b>Color</b>	Amber
<b>Odor</b>	Mild amine
<b>Odor threshold</b>	Not applicable

Property	Values	Remarks
pH		
pH @ dilution	9.5 - 11.5	10 % (75/25:IPA/H2O)
Melting / freezing point	No information available	
Boiling point/range	No information available	
Flash point	> 93 °C / > 200 °F	PMCC
Evaporation rate (BuAc =1)	No information available	
Flammability (solid, gas)	Not applicable	
Flammability Limit in Air		
Upper flammability limit	No information available	
Lower flammability limit	No information available	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	0.9801 - 1.0112	20 °C
Bulk 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	498 mm <sup>2</sup> /s	@ 40 °C
Dynamic viscosity	500-1000 mPa.s	
log Pow	No information available	
Explosive properties	Not applicable	
Oxidizing properties	None known.	

### 9.2 Other information

<b>Pour point</b>	-20°C / -4°F
<b>Molecular weight</b>	No information available
<b>VOC content(%)</b>	None
<b>Density</b>	No information available

#### Comments

The data listed above are typical physical and chemical properties and should not be construed as product specification.

## 10. Stability and Reactivity

**10.1 Reactivity**

No data available.

**10.2 Chemical stability**

Stable under normal temperature conditions and recommended use.

**10.3 Possibility of Hazardous Reactions**

**Hazardous polymerization**

Not known.

**10.4 Conditions to avoid**

Avoid contact with heat, sparks, open flame, and static discharge. Do not freeze.

**10.5 Incompatible materials**

Strong oxidizing agents.

**10.6 Hazardous decomposition products**

See Section 5.2.

**11. Toxicological Information**

**11.1 Information on toxicological effects**

**Acute toxicity**

**Inhalation**

Inhalation of vapors in high concentration may cause irritation of respiratory system. May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination.

**Eye contact**

Causes serious eye damage.

**Skin contact**

Causes skin irritation. Components of the product may be absorbed into the body through the skin.

**Ingestion**

Ingestion may cause stomach discomfort. May cause adverse cardiac effects, blood disturbances, and metabolic acidosis. May cause liver and kidney damage.

**LD50 Oral** > 5000 mg/kg (MIXTURE)

**LD50 Dermal** > 5000 mg/kg (MIXTURE)

**Toxicology data for the components**

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Polyamide	No data available	No data available	No data available
2-(2-Butoxyethoxy)ethanol	= 5660 mg/kg ( Rat )	= 2700 mg/kg ( Rabbit )	No data available
2,2'-Iminodiethanol (impurity)	= 620 µL/kg ( Rat ) = 780 mg/kg ( Rat )	= 7640 µL/kg ( Rabbit )	No data available
Triethylenetetramine (impurity)	= 2500 mg/kg ( Rat )	= 550 mg/kg ( Rabbit )	No data available

Chemical Name	IARC Group 1 or 2	ACGIH - Carcinogens	OSHA listed carcinogens	NTP
Polyamide	No data available	No data available	No data available	No data available
2-(2-Butoxyethoxy)ethanol	No data available	No data available	No data available	No data available
2,2'-Iminodiethanol (impurity)	Group 2B; Monograph 101 [2013] 2B Group 2B; Monograph 77 [2000]	A3 Confirmed Aminal Carcinogen with unknown Relevance to Humans	Present	No data available
Triethylenetetramine (impurity)	No data available	No data available	No data available	No data available

<b>Sensitization</b>	May cause allergic skin reaction.
<b>Mutagenic effects</b>	Conclusive but not sufficient for classification.
<b>Carcinogenicity</b>	Contains a known or suspected carcinogen.
<b>Reproductive toxicity</b>	Conclusive but not sufficient for classification.
<b>Developmental toxicity</b>	No information available.
<b>Routes of exposure</b>	Eye contact. Skin contact.
<b>Routes of entry</b>	Skin absorption.
<b>Specific target organ toxicity - Single exposure</b>	Not classified
<b>Specific target organ toxicity - Repeated exposure</b>	Not classified.
<b>Aspiration hazard</b>	Not classified.

## 12. Ecological Information

### 12.1 Toxicity

#### Toxicity to algae

See component information below.

#### Toxicity to fish

See component information below.

#### Toxicity to daphnia and other aquatic invertebrates

See component information below.

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Polyamide	No information available	No information available	No information available
2-(2-Butoxyethoxy)ethanol	= 1300 mg/L LC50 Lepomis macrochirus 96 h	> 100 mg/L EC50 Desmodesmus subspicatus 96 h	= 2850 mg/L EC50 Daphnia magna 24 h > 100 mg/L EC50 Daphnia magna 48 h
2,2'-Iminodiethanol (impurity)	600 - 1000 mg/L LC50 Lepomis macrochirus 96 h 1200 - 1580 mg/L LC50 Pimephales promelas 96 h 4460 - 4980 mg/L LC50 Pimephales promelas 96 h	= 7.8 mg/L EC50 Desmodesmus subspicatus 72 h 2.1 - 2.3 mg/L EC50 Pseudokirchneriella subcapitata 96 h	= 55 mg/L EC50 Daphnia magna 48 h
Triethylenetetramine (impurity)	= 495 mg/L LC50 Pimephales promelas 96 h = 570 mg/L LC50 Poecilia reticulata 96 h	= 3.7 mg/L EC50 Pseudokirchneriella subcapitata 96 h = 20 mg/L EC50 Pseudokirchneriella subcapitata 72 h = 2.5 mg/L EC50 Desmodesmus subspicatus 72 h	= 31.1 mg/L EC50 Daphnia magna 48 h

### 12.2 Persistence and degradability

No product level data available.

### 12.3 Bioaccumulative potential



No product level data available.

#### **12.4 Mobility**

Insoluble in water.

#### **12.5 Results of PBT and vPvB assessment**

This preparation contains no substance considered to be persistent, bioaccumulating nor toxic (PBT)  
This preparation contains no substance considered to be very persistent nor very bioaccumulating (vPvB)

#### **12.6 Other adverse effects.**

None known.

### **13. Disposal Considerations**

#### **13.1 Waste treatment methods**

**Disposal Method** Disposal should be made in accordance with federal, state and local regulations.  
**Contaminated packaging** Empty containers should be taken for local recycling, recovery or waste disposal.

### **14. Transport information**

#### **14.1. UN number**

<b>UN No. (DOT)</b>	NA3082
<b>UN No. (MT/ANTT)</b>	Not regulated
<b>UN No. (TDG)</b>	Not regulated
<b>UN/ID No. (ADR/RID/ADN/ADG)</b>	Not regulated
<b>UN No. (IMDG/ANTAQ)</b>	Not regulated
<b>UN No. (ICAO/ANAC)</b>	Not regulated

#### **14.2. UN proper shipping name**

Other regulated substances, liquid, n.o.s. (Contains Diethanolamine)

Not regulated for transportation by DOT if shipped in containers < RQ amount.

Product (RQ): 2,370 (Diethanolamine)  
(add RQ if shipped in containers >RQ for DOT only)

#### **14.3 Hazard class(es)**

<b>DOT Hazard class</b>	9
<b>ANTT Hazard class</b>	Not regulated
<b>TDG Hazard class</b>	Not regulated
<b>ADR/RID/ADN/ADG Hazard class</b>	Not regulated
<b>IMDG/ANTAQ Hazard class</b>	Not regulated
<b>ICAO/ANAC Hazard class/division</b>	Not regulated

#### **14.4 Packing group**

<b>DOT/ANTT Packing group</b>	PG III
<b>ANTT Packing group</b>	Not regulated
<b>TDG Packing group</b>	Not regulated
<b>ADR/RID/ADN/ADG Packing group</b>	Not regulated
<b>IMDG/ANTAQ Packing group</b>	Not regulated
<b>ICAO/ANAC Packing group</b>	Not regulated

**14.5 Environmental hazard**

No

**14.6 Special precautions**

Not applicable

**14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code**

Please contact SDS@slb.com for info regarding transport in Bulk.

**15. Regulatory Information**

**International inventories**

USA (TSCA)	Complies
Canada (DSL)	Does not comply
Philippines (PICCS)	Does not comply
Japan (ENCS)	Does not comply
China (IECSC)	Does not comply
Australia (AICS)	Does not comply
Korean (KECL)	Does not comply
New Zealand (NZIoC)	Does not comply

**Europe - REACH**

Contact REACH@slb.com for REACH information.

**U.S. Federal and State Regulations**

**SARA 311/312 Hazard Categories**

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications. Under the amended regulations at 40 CFR 370, EPCRA 311/312 Tier II reporting for the 2017 calendar year will need to be consistent with updated hazard classifications.

Chemical Name	SARA 302 / TPQs	SARA 313	CERCLA RQ
Polyamide	N/A	N/A	N/A
2-(2-Butoxyethoxy)ethanol	N/A	N/A	N/A
2,2'-Iminodiethanol (impurity)	N/A	1.0 %	100 lb final RQ 45.4 kg final RQ
Triethylenetetramine (impurity)	N/A	N/A	N/A

**California Proposition 65**

**WARNING**



This product can expose you to chemicals including those listed below, which is [are] known to the State of California to cause cancer, birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

Chemical Name	California Proposition 65
2,2'-Iminodiethanol (impurity)	carcinogen

111-42-2

**Brazilian Regulations**

**Brazil Regulation**

This SDS was prepared in accordance with Brazil law NBR 14725.

**Federal Police**

Not determined

**Army**

Not determined

**ANVISA**

Not determined

**16. Other Information**

**Supersedes date**

15/May/2015

**Revision date**

16/Mar/2018

**Version**

2

**This SDS has been revised in the following section(s)**

All sections. Updated according to GHS/CLP.

**HMIS classification**

Health	3*
Flammability	1
Physical hazard	0
PPE	X

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