



## Safety Data Sheet Formation Cleaning Solution M91

### 1. Identification of the substance/mixture and of the company/undertaking

#### 1.1 Product identifier

**Product name** Formation Cleaning Solution M91  
**Product code** M091

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

**Recommended Use** Used as a fracturing additive in oilfield applications

**Uses advised against** Consumer use  
Pesticide Use

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

##### Supplier

Schlumberger Oilfield Australia Pty Ltd  
ABN: 74 002 459 225  
ACN: 002 459 225  
256 St. Georges Terrace, Perth WA 6000  
+47 5157 7424

SDS@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 001 281 595 3518

### 2. Hazards Identification

#### 2.1 Classification of the substance or mixture

##### GHS Classification

##### Health hazards

Skin corrosion/irritation	Category 1 Subcategory 1A
Serious eye damage/eye irritation	Category 1

**Environmental hazards** Not classified

##### Physical Hazards

Substances/mixtures corrosive to metal	Category 1
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#### 2.2 Label elements



**Signal word**  
DANGER

**Hazard Statements**

H314 - Causes severe skin burns and eye damage  
H290 - May be corrosive to metals

**Precautionary statements**

P260 - Do not breathe dust/fume/gas/mist/vapors/spray  
P280 - Wear protective gloves/protective clothing/eye protection/face protection  
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/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  
P310 - Immediately call a POISON CENTER or doctor/physician  
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

**Supplementary precautionary statements**

P234 - Keep only in original container  
P264 - Wash face, hands and any exposed skin thoroughly after handling  
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  
P334 - Immerse in cool water/wrap in wet bandages  
P363 - Wash contaminated clothing before reuse  
P390 - Absorb spillage to prevent material damage  
P406 - Store in corrosive resistant polyethylene container with a resistant inner liner

**Contains**

Sodium hydroxide

Sodium hypochlorite

**2.3 Other hazards**

Not classified as PBT/vPvB by current EU criteria

**Australian statement of hazardous/dangerous nature**

Classified as Hazardous according to the criteria of NOHSC.  
HAZARDOUS SUBSTANCE. DANGEROUS GOODS.

### 3. Composition/information on Ingredients

**3.1 Substances**

Not applicable

**3.2 Mixtures**

Chemical Name	EC No	CAS No	Weight-%
Sodium hydroxide	215-185-5	1310-73-2	3-7
Sodium hypochlorite	231-668-3	7681-52-9	1-5

**Comments**

The product contains other ingredients which do not contribute to the overall classification.

## 4. First Aid Measures

### 4.1 First aid measures

<b>Inhalation</b>	Move the exposed person to fresh air at once. If breathing is difficult, (trained personnel should) give oxygen. If not breathing, give artificial respiration. Seek medical attention at once.
<b>Ingestion</b>	Do NOT induce vomiting. Get immediate medical attention. Rinse mouth. Risk of product entering the lungs on vomiting after ingestion. Never give anything by mouth to an unconscious person.
<b>Skin contact</b>	Promptly wash contaminated skin with soap or mild detergent and water. Promptly remove clothing if soaked through and wash as above. Burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Chemical burns must be treated by a physician.
<b>Eye Contact</b>	Remove contact lenses, if worn. Immediately flush eyes with water for 15 minutes while holding eyelids open. Immediate medical attention is required.

### 4.2. Most important symptoms and effects, both acute and delayed

<b>General advice</b>	Seek medical attention for all burns, regardless how minor they may seem. 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.
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#### 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

<b>Notes to physician</b>	Treat symptomatically.
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## 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

None known.

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

#### Unusual fire and explosion hazards

Contact with metals may evolve flammable hydrogen gas.

**Hazardous combustion products**

Thermal decomposition can lead to release of toxic and corrosive gases/vapors

**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.

Hazchem code ADG

2X

**6. Accidental Release Measures****6.1. Personal precautions, protective equipment and emergency procedures**

Do not get on skin or clothing. Wash thoroughly after handling. Do not breathe vapors or spray mist. Use personal protective equipment. 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 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). 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, eyes and clothing. Avoid spills and splashing during use. Do not breathe vapors or spray mist.

**Hygiene Measures**

Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product. 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 precautions**

Keep containers tightly closed in a dry, cool and well-ventilated place. Avoid extreme temperatures. Store away from incompatibles, Strong acids, Reducing Agents, Combustible.

materials Ammonium salts Metals

**Storage class** Corrosive storage.**Packaging materials** Use specially constructed containers only. High density polyethylene (HDPE) drum or can**8. Exposure Controls/Personal Protection****8.1 Control parameters****Component Information**

Chemical Name	Arabic	Australia	Egypt
Sodium hydroxide	Not determined	2 mg/m <sup>3</sup> Peak	2 mg/m <sup>3</sup> Ceiling
Sodium hypochlorite	Not determined	Not determined	Not determined
Chemical Name	India	Indonesian	Japan
Sodium hydroxide	2 mg/m <sup>3</sup> Ceiling	2 mg/m <sup>3</sup> Ceiling	Not determined
Sodium hypochlorite	Not determined	Not determined	Not determined
Chemical Name	Kazakhstan	Kuwait	New Zealand
Sodium hydroxide	Not determined	2.0 mg/m <sup>3</sup> STEL	2 mg/m <sup>3</sup> Ceiling
Sodium hypochlorite	Not determined	Not determined	Not determined
Chemical Name	Malaysia	Philippines	Russia
Sodium hydroxide	2 mg/m <sup>3</sup> Ceiling	2 mg/m <sup>3</sup> TWA	Not determined
Sodium hypochlorite	Not determined	Not determined	Not determined
Chemical Name	Thailand	Vietnam	Turkey
Sodium hydroxide	2 mg/m <sup>3</sup> TWA	Not determined	Not determined
Sodium hypochlorite	Not determined	Not determined	Not determined

**Notes**

No biological limit allocated

**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 Controls**

Ensure adequate ventilation Keep airborne concentrations below exposure limits

**Personal protective equipment****Eye protection**Use eye protection according to EN 166, designed to protect against liquid splashes  
Chemical splash goggles and/or face shield**Hand protection**

Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Impervious gloves made of: Neoprene

Break through time &gt;480 minutes

Glove thickness &gt;0.4 mm

Be aware that liquid may penetrate the gloves. Frequent change is advisable.

**Respiratory protection**

In case of insufficient ventilation wear suitable respiratory equipment Chemical respirator with inorganic vapour cartridge (Grey B). At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.

**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 breaks and immediately after handling the product



### 8.2.3 Environmental exposure controls

**Environmental exposure** Use appropriate containment to avoid environmental contamination See section 6 for more information

## 9. Physical and Chemical Properties

### 9.1 Information on basic physical and chemical properties

<b>Physical state</b>	Liquid
<b>Appearance</b>	Aqueous solution
<b>Odor</b>	Pungent
<b>Color</b>	Light yellow
<b>Odor threshold</b>	Not applicable

<u>Property</u>	<u>Values</u>	<u>Remarks</u>
<b>pH</b>	No information available	
<b>pH @ dilution</b>	No information available	
<b>Melting / freezing point</b>	No information available	
<b>Boiling point/range</b>	102 °C / 216 °F	
<b>Flash point</b>	No information available	
<b>Evaporation rate (BuAc =1)</b>	No information available	
<b>Flammability (solid, gas)</b>	Not applicable	
<b>Flammability Limit in Air</b>		
<b>Upper flammability limit</b>	Not applicable	
<b>Lower flammability limit</b>	Not applicable	
<b>Vapor pressure</b>	3.2 kPa @ 75°C	
<b>Vapor density</b>	No information available	
<b>Specific gravity</b>	1.2 @ 27°C	
<b>Bulk density</b>	No information available	
<b>Relative density</b>	No information available	
<b>Water solubility</b>	Soluble in water	
<b>Solubility in other solvents</b>	No information available	
<b>Autoignition temperature</b>	No information available	
<b>Decomposition temperature</b>	No information available	
<b>Kinematic viscosity</b>	No information available	
<b>Dynamic viscosity</b>	No information available	
<b>log Pow</b>	No information available	
<b>Explosive properties</b>	No information available	
<b>Oxidizing properties</b>	No information available	
<b>9.2 Other information</b>		
<b>Pour point</b>	No information available	
<b>Molecular weight</b>	No information available	
<b>VOC content(%)</b>	No information available	
<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**

Corrosive. Corrosive to Metals. Liberates poisonous chlorine gas on contact with acid.

**10.2 Chemical stability**

Stable under normal temperature conditions and recommended use.

**10.3 Possibility of Hazardous Reactions****Hazardous polymerization**

Hazardous polymerization does not occur.

**Hazardous Reactions**

Contact with acids liberates toxic gas. May release hydrogen gas (explosive) on contact with metals.

**10.4 Conditions to avoid**

Avoid extreme temperatures.

**10.5 Incompatible materials**

Strong acids. Reducing agents. Combustible materials. Ammonium salts. Metals.

**10.6 Hazardous decomposition products**

See Section 5.2.

## 11. Toxicological Information

**11.1 Information on toxicological effects****Acute toxicity**

<b>Inhalation</b>	Causes burns. Inhaled corrosive substances can lead to a toxic edema of the lungs.
<b>Eye contact</b>	Causes serious eye damage.
<b>Skin contact</b>	Causes severe skin burns.
<b>Ingestion</b>	Ingestion causes burns of the upper digestive and respiratory tracts.
<b>Unknown acute toxicity</b>	Not applicable.

**Toxicology data for the components**

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sodium hydroxide	No data available	1350 mg/kg ( Rabbit )	No data available
Sodium hypochlorite	= 8200 mg/kg ( Rat )	> 10000 mg/kg ( Rabbit )	No data available

**Sensitization** This product does not contain any components suspected to be sensitizing.

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

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

<b>Reproductive toxicity</b>	This product does not contain any known or suspected reproductive hazards.
<b>Routes of exposure</b>	Skin contact. Inhalation. Eye contact. Ingestion.
<b>Routes of entry</b>	Skin contact. Eye contact. Ingestion. Inhalation.
<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 applicable.
<b>Other information</b>	Key literature references and sources for data. See Section 16 for more information.

## 12. Ecological Information

### 12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. Large amounts will affect pH and harm aquatic organisms

#### 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.

#### Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Sodium hydroxide	= 45.4 mg/L LC50 Oncorhynchus mykiss 96 h	No information available	No information available
Sodium hypochlorite	0.18 - 0.22 mg/L LC50 Oncorhynchus mykiss 96 h 0.03 - 0.19 mg/L LC50 Oncorhynchus mykiss 96 h 0.05 - 0.771 mg/L LC50 Oncorhynchus mykiss 96 h 0.28 - 1 mg/L LC50 Lepomis macrochirus 96 h 0.4 - 0.8 mg/L LC50 Lepomis macrochirus 96 h 4.5 - 7.6 mg/L LC50 Pimephales promelas 96 h 0.06 - 0.11 mg/L LC50 Pimephales promelas 96 h	= 0.095 mg/L EC50 Skeletonema costatum 24 h	= 2.1 mg/L EC50 Daphnia magna 96 h 0.033 - 0.044 mg/L EC50 Daphnia magna 48 h

### 12.2 Persistence and degradability

No product level data available.

Chemical Name	Persistence and degradability
Sodium hydroxide	Inorganic compound
Sodium hypochlorite	Not Applicable - Inorganic chemical.

### 12.3 Bioaccumulative potential



No product level data available.

Chemical Name	Bioaccumulation
Sodium hydroxide	Product/Substance is inorganic
Sodium hypochlorite	Not Applicable - Inorganic chemical.

#### 12.4 Mobility

##### Mobility

Soluble in water.

Chemical Name	Mobility
Sodium hydroxide	Soluble in water
Sodium hypochlorite	Soluble in water

##### Mobility in soil

See component information below.

Chemical Name	Mobility in soil
Sodium hydroxide	Not expected to adsorb on soil

#### 12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

#### 12.6 Other adverse effects.

None known.

#### 12.7 Other information

Key literature references and sources for data. See Section 16 for more information.

### 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 taken for local recycling, recovery or waste disposal.

### 14. Transport information

#### 14.1. UN number

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

UN3266  
UN3266  
UN3266

#### 14.2. UN proper shipping name

CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (contains sodium hydroxide, sodium hypochlorite),

#### 14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	8
IMDG/ANTAQ Hazard class	8
ICAO/ANAC Hazard class/division	8

#### 14.4 Packing group

ADR/RID/ADN/ADG Packing group	II
IMDG/ANTAQ Packing group	II
ICAO/ANAC Packing group	II



#### 14.5 Environmental hazard

No

#### 14.6 Special precautions

Hazard identification no (ADR)	80
EmS (IMDG)	F-A, S-B
Emergency Action Code (EAC)	2X
Tunnel restriction code	(E)
Hazchem code ADG	2X

#### 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

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

The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons

Sodium hydroxide  
Schedule 6  
Schedule 5

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)].

National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004) 3rd Edition].

National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)].

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

**ADG Code – Australian Dangerous Goods Code****International inventories**

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

**16. Other Information**

<b>Prepared by</b>	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Muriel Martin Beurel
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<b>Revision date</b>	23-Nov-2018
<b>Version</b>	3
<b>This SDS has been revised in the following section(s)</b>	1, 8, No changes with regard to classification have been made.

**Key literature references and sources for data**

www.ChemADVISOR.com

Supplier

National Chemical Inventories

National regulatory information

National occupational exposure limits

**HMIS classification**

Health	3
Flammability	0
Physical hazard	0
PPE	J

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