

## Safety Data Sheet

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

#### 1.1 Product identifier

Trade name: Flex-Moly

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

Use of the Substance/Mixture: Lubricants and lubricant additives

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

Flexitallic Ltd, Scandinavia Mill, Hunsworth Lane, Cleckheaton,  
West Yorkshire, BD19 4LN  
Phone number – 01274 851273  
Emergency e-mail – [enquiries@flexitallic.eu](mailto:enquiries@flexitallic.eu)

1.4 Emergency telephone number - +44 (0)1274 851273

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Acute aquatic toxicity, Category 1

H400: Very toxic to aquatic life.

Chronic aquatic toxicity, Category 1

H410: Very toxic to aquatic life with long lasting effects.

#### 2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms:



Signal word: Warning

Hazard statements: H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements:

Prevention: P273 Avoid release to the environment.

Response: P391 Collect spillage.

### 2.3 Other hazards

None known.

## **SECTION 3: Composition/information on ingredients**

### 3.2 Mixtures

Chemical nature: Inorganic and organic compounds in mineral oil

#### **Hazardous components**

Chemical name	CAS-No. EC-No. Registration number	Classification	Concentration (% w/w)
Distillates (petroleum), solvent-dewaxed heavy paraffinic	64742-65-0 265-169-7	Asp. Tox. 1; H304	>= 20 - < 30
Copper metal powder	7440-50-8 231-159-6	Aquatic Acute 1; H400 Aquatic Chronic 1; H410	>= 2.5 - < 10
Zinc	7440-66-6 231-175-3	Pyr. Sol. 1; H250 Water-react. 1; H260 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	>= 2.5 - < 10
N-Tallow Alkyltrimethylenediamine Oleate	61791-53-5 263-186-4	Skin Corr. 1B; H314 Eye Dam. 1; H318 Aquatic Acute 1; H400	>= 0.25 - < 1
Substances with a workplace exposure limit :			
Calcium fluoride	7789-75-5 232-188-7		>= 20 - < 30

For explanation of abbreviations see section 23.

## **SECTION 4: First aid measures**

### 4.1 Description of first aid measures

Protection of first-aiders: No special precautions are necessary for first aid responders.

If inhaled: If inhaled, remove to fresh air. Get medical attention if symptoms occur.

In case of skin contact: Wash with water and soap as a precaution. Get medical attention if symptoms occur.

In case of eye contact: Flush eyes with water as a precaution. Get medical attention if irritation develops and persists.

If swallowed: If swallowed, DO NOT induce vomiting. Get medical attention if symptoms occur. Rinse mouth thoroughly with water.

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

None known.

#### **4.3 Indication of any immediate medical attention and special treatment needed**

Treatment: Treat symptomatically and supportively.

### **SECTION 5: Firefighting measures**

#### **5.1 Extinguishing media**

Suitable extinguishing media:

Water spray  
Alcohol-resistant foam  
Carbon dioxide (CO<sub>2</sub>)  
Dry chemical

Unsuitable extinguishing media: None known.

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

Specific hazards during fire-fighting: Exposure to combustion products may be a hazard to health.

Hazardous combustion products:

Carbon oxides  
Fluorine compounds  
Metal oxides  
Silicon oxides

#### **5.3 Advice for firefighters**

Special protective equipment for firefighters: Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

Specific extinguishing methods:

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
Use water spray to cool unopened containers.  
Remove undamaged containers from fire area if it is safe to do so.  
Evacuate area.

### **SECTION 6: Accidental release measures**

#### **6.1 Personal precautions, protective equipment and emergency procedures**

Personal precautions: Follow safe handling advice and personal protective equipment recommendations.

#### **6.2 Environmental precautions**

Environmental precautions:  
Discharge into the environment must be avoided.

Prevent further leakage or spillage if safe to do so.  
Retain and dispose of contaminated wash water.  
Local authorities should be advised if significant spillages cannot be contained.

### **6.3 Methods and material for containment and cleaning up**

Methods for cleaning up: Soak up with inert absorbent material. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent.

Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the clean up of releases. You will need to determine which regulations are applicable. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

### **6.4 Reference to other sections**

See sections: 7, 8, 11, 12 and 13.

## **SECTION 7: Handling and storage**

### **7.1 Precautions for safe handling**

Technical measures: See engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation: Use only with adequate ventilation.

Advice on safe handling: Handle in accordance with good industrial hygiene and safety practice. Take care to prevent spills, waste and minimize release to the environment.

Hygiene measures: Ensure that eye flushing systems and safety showers are located close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before re-use.

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

Requirements for storage: Keep in properly labelled containers. Store in accordance with areas and containers the particular national regulations.

Advice on common storage: Do not store with the following product types: Strong oxidizing agents

### **7.3 Specific end use(s)**

Specific use(s): These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions.

## **SECTION 8: Exposure controls/personal protection**

### **8.1 Control parameters**

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Calcium fluoride	7789-75-5	TWA	2.5 mg/m <sup>3</sup> (Fluorine)	2000/39/EC
Further information	Indicative			
		TWA	2.5 mg/m <sup>3</sup> (Fluorine)	GB EH40
Further information	Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used			
Graphite	7782-42-5	TWA (inhalable dust)	10 mg/m <sup>3</sup>	GB EH40
Further information	<p>For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust, The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m<sup>-3</sup> 8-hour TWA of inhalable dust or 4 mg.m<sup>-3</sup> 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limit. Most industrial dusts contain particles of a wide range of sizes. The behaviour, deposition and fate of any particular particle after entry into the human respiratory system and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed 'inhalable' and 'respirable'. Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breathing and is therefore available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller definitions and explanatory material are given in MDHS14/3., Where dusts contain components that have their own assigned WEL, all the relevant limits should be complied with., Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used</p>			
		TWA (Respirable dust)	4 mg/m <sup>3</sup>	GB EH40
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Copper metal powder	7440-50-8	TWA (Fumes)	0.2 mg/m <sup>3</sup> (Copper)	GB EH40
		TWA (Dusts and mists)	1 mg/m <sup>3</sup> (Copper)	GB EH40
		STEL (Dusts and mists)	2 mg/m <sup>3</sup> (Copper)	GB EH40
Silicon dioxide	7631-86-9	TWA (inhalable dust)	6 mg/m <sup>3</sup> (Copper)	GB EH40
Further information	<p>For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust, The COSHH definition of a substance hazardous to health</p>			

	includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m-3 8-hour TWA of inhalable dust or 4 mg.m-3 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limit. Most industrial dusts contain particles of a wide range of sizes. The behaviour, deposition and fate of any particular particle after entry into the human respiratory system and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed 'inhalable' and 'respirable'. Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breathing and is therefore available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller definitions and explanatory material are given in MDHS14/3., Where dusts contain components that have their own assigned WEL, all the relevant limits should be complied with., Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used			
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These substance(s) are inextricably bound in the product and therefore do not contribute to a dust inhalation hazard.

Silicon dioxide

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
Calcium fluoride	Workers	Inhalation	Long-term systemic effects	5 mg/m3
	Consumers	Ingestion	Long-term systemic effects	0.02 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	0.5 mg/m3
Graphite	Consumers	Inhalation	Long-term local effects	0.3 mg/m3
	Consumers	Ingestion	Long-term systemic effects	813 mg/kg bw/day
	Workers	Inhalation	Long-term local effects	1.2 mg/m3
Copper metal powder	Consumers	Inhalation	Acute systemic effects	20 mg/m3
	Consumers	Skin contact	Acute systemic effects	137 mg/kg bw/day

	Workers	Skin contact	Long-term systemic effects	137 mg/kg bw/day
	Workers	Inhalation	Acute systemic effects	20 mg/m3
	Workers	Skin contact	Acute systemic effects	273 mg/kg bw/day
	Consumers	Skin contact	Long-term systemic effects	137 mg/kg bw/day
Zinc	Workers	Skin contact	Long-term systemic effects	83.3 mg/kg bw/day
	Workers	Inhalation	Long-term systemic effects	5 mg/m3
	Consumers	Skin contact	Long-term systemic effects	83.3 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	2.5 mg/m3
	Consumers	Inhalation	Long-term systemic effects	0.83 mg/kg bw/day

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
Calcium fluoride	Fresh water	0.9 mg/l
	Sewage treatment plant	51 mg/l
	Soil	11 mg/kg
Copper metal powder	Fresh water	7.8 µg/l
	Marine water	5.2 µg/l
	Sewage treatment plant	230 µg/l
	Fresh water sediment	87 mg/kg
	Marine sediment	676 mg/kg
Zinc	Soil	65 mg/kg
	Fresh water	20 µg/l
	Marine water	6.1 µg/l
	Sewage treatment plant	52 µg/l
	Fresh water sediment	117.8 mg/kg
	Marine sediment	56.5 mg/kg
	Soil	35.6 mg/kg

## 8.2 Exposure controls

Engineering measures:

Ensure adequate ventilation, especially in confined areas.

Minimize workplace exposure concentrations.

Personal protective equipment:

Eye protection: Wear the following personal protective equipment: Safety glasses

Hand protection Remarks: Wash hands before breaks and at the end of workday.

Skin and body protection: Skin should be washed after contact.

Respiratory protection: Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

Filter type: Combined particulates and organic vapour type (A-P)

## **SECTION 9: Physical and chemical properties**

### **9.1 Information on basic physical and chemical properties**

Appearance: paste

Colour: brown

Odour: slight

Odour Threshold: No data available

pH: Not applicable

Melting point/freezing point: No data available

Initial boiling point and boiling range: Not applicable

Flash point: Not applicable

Evaporation rate: Not applicable

Flammability (solid, gas): Not classified as a flammability hazard

Upper explosion limit: No data available

Lower explosion limit: No data available

Vapour pressure: Not applicable

Relative vapour density: No data available

Relative density: 1.26

Solubility(ies): No data available

Water solubility

Partition coefficient: n-octanol/water: No data available

Auto-ignition temperature: No data available

Decomposition temperature: No data available

Viscosity: Not applicable

Viscosity, dynamic

Explosive properties: Not explosive

Oxidizing properties: The substance or mixture is not classified as oxidizing.

### **9.2 Other information**

Molecular weight: No data available

Self-ignition: The substance or mixture is not classified as pyrophoric. The substance or mixture is not classified as self heating.



**SECTION 10: Stability and reactivity**

**10.1 Reactivity**

Not classified as a reactivity hazard.

**10.2 Chemical stability**

Stable under normal conditions.

**10.3 Possibility of hazardous reactions**

Hazardous reactions: Can react with strong oxidizing agents.

**10.4 Conditions to avoid**

Conditions to avoid: None known.

**10.5 Incompatible materials**

Materials to avoid: Oxidizing agents

**10.6 Hazardous decomposition products**

No hazardous decomposition products are known.

**SECTION 11: Toxicological information**

**11.1 Information on toxicological effects**

Information on likely routes of exposure:

Skin contact

Ingestion

Eye contact

**Acute toxicity**

Not classified based on available information.

**Components:**

**Distillates (petroleum), solvent-dewaxed heavy paraffinic:**

Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg  
 Method: OECD Test Guideline 401  
 Remarks: Based on data from similar materials

Acute inhalation toxicity: LC50 (Rat): > 5.53 mg/l  
 Exposure time: 4 h  
 Test atmosphere: dust/mist  
 Method: OECD Test Guideline 403  
 Assessment: The substance or mixture has no acute inhalation toxicity  
 Remarks: Based on data from similar materials

Acute dermal toxicity: LD50 (Rabbit): > 5,000 mg/kg

Method: OECD Test Guideline 402

Remarks: Based on data from similar materials

**Copper metal powder:**

Acute oral toxicity: LD50 (Rat): > 2,500 mg/kg  
 Method: OECD Test Guideline 423  
 Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity: LC50 (Rat): > 5.11 mg/l  
 Exposure time: 4 h  
 Test atmosphere: dust/mist  
 Method: OECD Test Guideline 436

Acute dermal toxicity: LD50 (Rat): > 2,000 mg/kg  
 Method: OECD Test Guideline 402  
 Assessment: The substance or mixture has no acute dermal toxicity

**Zinc:**

Acute oral toxicity: LD50 (Rat): > 2,000 mg/kg  
 Method: OECD Test Guideline 401  
 Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity: LC50 (Rat): > 5.41 mg/l  
 Exposure time: 4 h  
 Test atmosphere: dust/mist  
 Method: OECD Test Guideline 403  
 Assessment: The substance or mixture has no acute inhalation toxicity

**N-Tallow Alkyltrimethylenediamine Oleate:**

Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg  
 Acute inhalation toxicity: Assessment: Corrosive to the respiratory tract.

**Calcium fluoride:**

Acute oral toxicity: LD50 (Rat): > 2,000 mg/kg  
 Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity: LC50 (Rat): > 5.07 mg/l  
 Exposure time: 4 h  
 Test atmosphere: dust/mist  
 Method: OECD Test Guideline 403  
 Assessment: The substance or mixture has no acute inhalation toxicity

**Skin corrosion/irritation**

Not classified based on available information.

**Components:**

**Distillates (petroleum), solvent-dewaxed heavy paraffinic:**

Species: Rabbit

Result: No skin irritation

Remarks: Based on data from similar materials

**Copper metal powder:**

Species: Rabbit

Method: OECD Test Guideline 404

Result: No skin irritation

**N-Tallow Alkyltrimethylenediamine Oleate:**

Result: Corrosive after 3 minutes to 1 hour of exposure

**Calcium fluoride:**

Species: Rabbit

Method: OECD Test Guideline 404

Result: No skin irritation

**Serious eye damage/eye irritation**

**Distillates (petroleum), solvent-dewaxed heavy paraffinic:**

Species: Rabbit

Method: OECD Test Guideline 405

Result: No eye irritation

Remarks: Based on data from similar materials

**Copper metal powder:**

Species: Rabbit

Method: OECD Test Guideline 405

Result: No eye irritation

**Zinc:**

Species: Rabbit

Method: OECD Test Guideline 405

Result: No eye irritation

**N-Tallow Alkyltrimethylenediamine Oleate:**

Result: Irreversible effects on the eye

**Calcium fluoride:**

Species: Rabbit

Method: OECD Test Guideline 405

Result: No eye irritation

**Respiratory or skin sensitisation**

**Skin sensitisation**

Not classified based on available information.

**Respiratory sensitisation**

Not classified based on available information.

Components:

**Distillates (petroleum), solvent-dewaxed heavy paraffinic:**

Test Type: Buehler Test

Exposure routes: Skin contact

Species: Guinea pig

Method: OECD Test Guideline 406

Result: negative

Remarks: Based on data from similar materials

**Copper metal powder:**

Test Type: Maximisation Test

Exposure routes: Skin contact

Species: Guinea pig

Method: OECD Test Guideline 406

Result: negative

**Calcium fluoride:**

Test Type: Local lymph node assay (LLNA)

Exposure routes: Skin contact

Species: Mouse

Method: OECD Test Guideline 429

Result: negative

**Germ cell mutagenicity:**

Not classified based on available information.

**Genotoxicity in vitro:** Test Type: Bacterial reverse mutation assay (AMES)

Method: OECD Test Guideline 471

Result: negative

Remarks: Based on data from similar materials

**Genotoxicity in vivo:** Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)

Species: Mouse

Application Route: Intraperitoneal injection

Method: OECD Test Guideline 474

Result: negative

Remarks: Based on data from similar materials

**Copper metal powder:**

**Genotoxicity in vitro:** Test Type: Bacterial reverse mutation assay (AMES)

Method: OECD Test Guideline 471

Result: negative

**Genotoxicity in vivo:** Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Mouse  
Application Route: Ingestion  
Method: Directive 67/548/EEC, Annex V, B.12.  
Result: negative  
Remarks: Based on data from similar materials

**Zinc:**

**Genotoxicity in vitro:** Test Type: Chromosome aberration test in vitro  
Method: OECD Test Guideline 473  
Result: positive  
Remarks: Based on data from similar materials

Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471  
Result: negative  
Remarks: Based on data from similar materials

**Genotoxicity in vivo:** Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Rat  
Application Route: Ingestion  
Result: negative  
Remarks: Based on data from similar materials

**Germ cell mutagenicity- Assessment:**

Weight of evidence does not support classification as a germ cell mutagen.

**Calcium fluoride:**

**Genotoxicity in vitro:** Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative

**Carcinogenicity**

Not classified based on available information.

**Components:**

**Distillates (petroleum), solvent-dewaxed heavy paraffinic:**

Species: Mouse  
Application Route: Skin contact  
Exposure time: 78 weeks  
Method: OECD Test Guideline 451  
Result: negative

**Carcinogenicity - Assessment:**

Classified based on DMSO extract content < 3% (Regulation (EC) 1272/2008, Annex VI, Part 3, Note L)

**Calcium fluoride:**

Species: Rat

Application Route: Ingestion

Exposure time: 99 weeks

Result: negative

**Reproductive toxicity:**

Not classified based on available information.

**Components:**

**Distillates (petroleum), solvent-dewaxed heavy paraffinic:**

Effects on fertility: Test Type: Reproduction/Developmental toxicity screening test  
Species: Rat  
Application Route: Ingestion  
Result: negative  
Remarks: Based on data from similar materials

Effects on foetal development: Test Type: Embryo-foetal development  
Species: Rat  
Application Route: Skin contact  
Method: OECD Test Guideline 414  
Result: negative  
Remarks: Based on data from similar materials

**Copper metal powder:**

Effects on fertility: Test Type: Two-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 416  
Result: negative

Effects on foetal development: Test Type: Embryo-foetal development  
Species: Rabbit  
Application Route: Ingestion

**Zinc:**

Effects on fertility: Test Type: Two-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Result: negative

Effects on foetal development: Test Type: Embryo-foetal development  
Species: Rat  
Application Route: Ingestion

Result: negative  
Remarks: Based on data from similar materials

**Calcium fluoride:**

Effects on fertility: Test Type: Two-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Result: negative

Effects on foetal development: Test Type: Embryo-foetal development  
Species: Rat  
Application Route: Ingestion  
Result: negative

**STOT - single exposure**

Not classified based on available information.

**STOT - repeated exposure**

Not classified based on available information.

**Components:**

**Copper metal powder:**

Exposure routes: inhalation (dust/mist/fume)  
Assessment: No significant health effects observed in animals at concentrations of 0.2 mg/l/6h/d or less.

**Calcium fluoride:**

Exposure routes: inhalation (dust/mist/fume)  
Assessment: No significant health effects observed in animals at concentrations of 0.2 mg/l/6h/d or less.

Repeated dose toxicity

**Components:**

**Distillates (petroleum), solvent-dewaxed heavy paraffinic:**

Species: Rabbit  
NOAEL: 1,000 mg/kg  
Application Route: Skin contact  
Exposure time: 4 Weeks  
Method: OECD Test Guideline 410  
Remarks: Based on data from similar materials

Species: Rat  
NOAEL: > 980 mg/m<sup>3</sup>  
Application Route: inhalation (dust/mist/fume)  
Exposure time: 4 Weeks  
Remarks: Based on data from similar materials

**Copper metal powder:**

Species: Rat  
 NOAEL:  $\geq 2$  mg/m<sup>3</sup>  
 Application Route: inhalation (dust/mist/fume)  
 Exposure time: 28 Days

**Zinc:**

Species: Rat  
 NOAEL: 31 mg/kg  
 Application Route: Ingestion  
 Exposure time: 90 Days

**Calcium fluoride:**

Species: Rat  
 NOAEL: 7 mg/m<sup>3</sup>  
 Application Route: inhalation (dust/mist/fume)  
 Exposure time: 28 Days

**Aspiration toxicity**

Not classified based on available information.

**Components:**

**Distillates (petroleum), solvent-dewaxed heavy paraffinic:**

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

**SECTION 12: Ecological information**

**12.1 Toxicity**

**Components:**

**Distillates (petroleum), solvent-dewaxed heavy paraffinic:**

Toxicity to fish: LC50 (Pimephales promelas (fathead minnow)):  $> 100$  mg/l  
 Exposure time: 96 h  
 Method: OECD Test Guideline 203  
 Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)):  $> 10,000$  mg/l  
 Exposure time: 48 h  
 Method: OECD Test Guideline 202  
 Remarks: Based on data from similar materials

Toxicity to algae: EC50 (Pseudokirchneriella subcapitata (green algae)):  $> 100$  mg/l  
 Exposure time: 72 h  
 Method: OECD Test Guideline 201



Remarks: Based on data from similar materials

Toxicity to microorganisms: NOEC: > 1.93 mg/l  
 Exposure time: 10 min  
 Method: DIN 38 412 Part 8  
 Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): NOEC: 10 mg/l  
 Exposure time: 21 d  
 Species: Daphnia magna (Water flea)  
 Method: OECD Test Guideline 211  
 Remarks: Based on data from similar materials

**Copper metal powder:**

Toxicity to fish: LC50: 8.1 µg/l  
 Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 0.792 mg/l  
 Exposure time: 48 h

Toxicity to algae: EC50 (Chlorella vulgaris (Fresh water algae)): 0.333 mg/l  
 Exposure time: 72 h  
 Method: OECD Test Guideline 201  
 M-Factor (Acute aquatic toxicity): 100

Toxicity to fish (Chronic toxicity): NOEC: 1 µg/l  
 Species: Oncorhynchus mykiss (rainbow trout)

M-Factor (Chronic aquatic toxicity): 100

**Zinc:**

Toxicity to fish: LC50 (Pimephales promelas (fathead minnow)): 0.78 mg/l  
 Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 1.83 mg/l  
 Exposure time: 48 h  
 Method: OECD Test Guideline 202

Toxicity to algae: IC50 (Pseudokirchneriella subcapitata (green algae)): 0.15 mg/l  
 Exposure time: 72 h  
 Method: OECD Test Guideline 201  
 M-Factor (Acute aquatic toxicity): 1

Toxicity to microorganisms: EC50: 5.2 mg/l  
 Exposure time: 3 h  
 Method: OECD Test Guideline 209

Toxicity to fish (Chronic toxicity): NOEC: 0.199 mg/l  
 Exposure time: 30 d  
 Species: Oncorhynchus mykiss (rainbow trout)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): NOEC: 0.1 mg/l  
 Exposure time: 21 d  
 Species: Daphnia magna (Water flea)  
 M-Factor (Chronic aquatic toxicity)

**N-Tallow Alkyltrimethylenediamine Oleate:**

Toxicity to fish: LC50: > 0.1 - 1 mg/l  
 Exposure time: 96 h  
 Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): > 0.001 - 0.01 mg/l  
 Exposure time: 48 h  
 Remarks: Based on data from similar materials

Toxicity to algae: EC50 : > 0.01 - 0.1 mg/l  
 Exposure time: 72 h  
 Remarks: Based on data from similar materials  
 M-Factor (Acute aquatic toxicity): 100

**Calcium fluoride:**

Toxicity to fish: LC50 (Oncorhynchus mykiss (rainbow trout)): 108 mg/l  
 Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 97 - 270 mg/l  
 Exposure time: 48 h

Toxicity to algae: EC50 (Selenastrum capricornutum (green algae)): 122 mg/l  
 Exposure time: 96 h

Toxicity to fish (Chronic toxicity): NOEC: 4 mg/l  
 Exposure time: 21 d  
 Species: Oncorhynchus mykiss (rainbow trout)

Toxicity to daphnia and other aquatic invertebrates (Chron-ic toxicity):

NOEC: 8.9 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)

**12.2 Persistence and degradability**

Components:

**Distillates (petroleum), solvent-dewaxed heavy paraffinic:**

Biodegradability: Result: Not readily biodegradable.  
Biodegradation: 2 - 8 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B

**N-Tallow Alkyltrimethylenediamine Oleate:**

Biodegradability: Result: rapidly degradable  
Remarks: Based on data from similar materials

**12.3 Bioaccumulative potential**

Components:

**Zinc:**

Bioaccumulation: Species: Fish  
Bioconcentration factor (BCF): 177

**12.4 Mobility in soil**

No data available

**12.5 Results of PBT and vPvB assessment**

Not relevant

**12.6 Other adverse effects**

No data available

**SECTION 13: Disposal considerations**

**13.1 Waste treatment methods**

Product: Dispose of in accordance with local regulations. According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities

Contaminated packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal. If not otherwise specified: Dispose of as unused product.

**SECTION 14: Transport information**

**14.1 UN number**

ADN: UN 3077

ADR: UN 3077

RID: UN 3077

IMDG: UN 3077

IATA: UN 3077

**14.2 UN proper shipping name**

ADN: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
(N-Tallow Alkyltrimethylenediamine Oleate, Zinc)

ADR: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
(N-Tallow Alkyltrimethylenediamine Oleate, Zinc)

RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
(N-Tallow Alkyltrimethylenediamine Oleate, Zinc)

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
(N-Tallow Alkyltrimethylenediamine Oleate, Zinc)

IATA: Environmentally hazardous substance, solid, n.o.s.  
(N-Tallow Alkyltrimethylenediamine Oleate, Zinc)

**14.3 Transport hazard class(es)**

ADN: 9

ADR: 9

RID: 9

IMDG: 9

IATA: 9

**14.4 Packing group**

**ADN**

Packing group: III  
Classification Code: M7  
Hazard Identification Number: 90  
Labels: 9

**ADR**

Packing group: III  
Classification Code: M7  
Hazard Identification Number: 90  
Labels: 9  
Tunnel restriction code: (E)

**RID**

Packing group: III  
 Classification Code: M7  
 Hazard Identification Number: 90  
 Labels: 9

**IMDG**

Packing group: III  
 Labels: 9  
 EmS Code: F-A, S-F

**IATA (Cargo)**

Packing instruction (cargo aircraft): 956  
 Packing instruction (LQ): Y956  
 Packing group: III  
 Labels: Miscellaneous

**IATA (Passenger)**

Packing instruction (passenger aircraft): 956  
 Packing instruction (LQ): Y956  
 Packing group: III  
 Labels: Miscellaneous

**14.5 Environmental hazards**

**ADN**

Environmentally hazardous: yes

**ADR**

Environmentally hazardous: yes

**RID**

Environmentally hazardous: yes

**IMDG**

Marine pollutant: yes

**IATA (Passenger)**

Marine pollutant: yes

**IATA (Cargo)**

Marine pollutant: yes

**14.6 Special precautions for user**

Not applicable

**14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**

Remarks: Not applicable for product as supplied.

**SECTION 15: Regulatory information**

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

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59):  
Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer: Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants: Not applicable

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals: Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

E1	Quantity 1	Quantity 2
ENVIRONMENTAL HAZARDS	100 t	200 t

**The components of this product are reported in the following inventories:**

**KECI:** All ingredients listed, exempt or notified.

**REACH:** All ingredients (pre-) registered or exempt.

**TSCA:** All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.

**AICS:** All ingredients listed or exempt.

**IECSC:** All ingredients listed or exempt.

**ENCS/ISHL:** All components are listed on ENCS/ISHL or exempted from inventory listing.

**PICCS:** All ingredients listed or exempt.

**DSL:** All chemical substances in this product comply with the CEPA 1999 and NSNR and are on or exempt from listing on the Canadian Domestic Substances List (DSL).

**NZIoC:** All ingredients listed or exempt.

**15.2 Chemical safety assessment**

A Chemical Safety Assessment has not been carried out.

**SECTION 16: Other information**

**Date This Document Was Created – May 2017**

**Date of issue – May 2017**

**Brief description of changes since the last version –**

N/A – new product safety data sheet

**Full text of H-Statements**

H250: Catches fire spontaneously if exposed to air.

H260: In contact with water releases flammable gases which may ignite spontaneously.

H304: May be fatal if swallowed and enters airways.

H314: Causes severe skin burns and eye damage.

H318: Causes serious eye damage.

H400: Very toxic to aquatic life.

H410: Very toxic to aquatic life with long lasting effects.

**Full text of other abbreviations**

Aquatic Acute:	Acute aquatic toxicity
Aquatic Chronic:	Chronic aquatic toxicity
Asp. Tox:	Aspiration hazard
Eye Dam:	Serious eye damage
Pyr. Sol:	Pyrophoric solids
Skin Corr:	Skin corrosion
Water-react:	Substances and mixtures, which in contact with water, emit flammable gases
2000/39/EC:	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
GB EH40:	UK. EH40 WEL - Workplace Exposure Limits
2000/39/EC / TWA:	Limit Value - eight hours
GB EH40 / TWA:	Long-term exposure limit (8-hour TWA reference period)
GB EH40 / STEL:	Short-term exposure limit (15-minute reference period)

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organization for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical

Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

**Further information**

Sources of key data used to compile the Safety Data Sheet: Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

**Issuing authority** - Flexitallic Applications Engineering Department

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