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MATERIAL SAFETY DATA SHEET  
REQUIRED UNDER SAFETY AND HEALTH REGULATION FOR SHIP REPAIRING

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DATE UPDATED: MAY 25, 2016

**SECTION 1. ----- CHEMICAL IDENTIFICATION -----**

**Product Name** MOPS, Sodium Salt  
**Product Code(s)** MDB360S  
**Recommended Use** For Further Manufacturing Use Only  
Not for Human or Animal Drug Use  
**Recommended Use** Buffer specifically formulated for use in biological systems  
**Synonyms** 3-(4-MORPHOLINO)PROPANESULFONIC ACID SODIUM SALT,  
3-(N-MORPHOLINO)PROPANESULFONIC ACID SODIUM SALT

**SECTION 2. ----- HAZARDS IDENTIFICATION -----**

**Emergency Overview**

**WHMIS Classification**

Not WHMIS controlled.

Not a dangerous substance according to GHS.

**HMIS Classification**

**Health hazard:** 0  
**Flammability:** 0  
**Physical hazards:** 0

**Potential Health Effects**

**Inhalation** May be harmful if inhaled. May cause respiratory tract irritation.  
**Skin** May be harmful if absorbed through skin. May cause skin irritation.  
**Eyes** May cause eye irritation.  
**Ingestion** May be harmful if swallowed.

**SECTION 3. ----- COMPOSITION/INFORMATION ON INGREDIENTS -----**

Chemical Name	EC No.	CAS-No	Weight %
4-Morpholinepropanesulfonic acid, sodium salt	-	71119-22-7	95-100

**SECTION 4. ----- FIRST-AID MEASURES -----**

**If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration.

**In case of skin contact**

Wash off with soap and plenty of water.

**In case of eye contact**

Flush eyes with water as a precaution.

**If swallowed**

Never give anything by mouth to an unconscious person. Rinse mouth with water.

**SECTION 5. - - - - - FIRE FIGHTING MEASURES - - - - -**

**Conditions of flammability**

Not flammable or combustible.

**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NO<sub>x</sub>), Sulphur oxides, Sodium oxides

**Explosion data - sensitivity to mechanical impact**

no data available

**Explosion data - sensitivity to static discharge**

no data available

**SECTION 6. - - - - - ACCIDENTAL RELEASE MEASURES- - - - -**

**Personal precautions**

Avoid dust formation. Avoid breathing vapours, mist or gas.

**Environmental precautions**

Do not let product enter drains.

**Methods and materials for containment and cleaning up**

Sweep up and shovel. Keep in suitable, closed containers for disposal.

**SECTION 7. - - - - - HANDLING AND STORAGE- - - - -**

**Precautions for safe handling**

Provide appropriate exhaust ventilation at places where dust is formed.

**Conditions for safe storage**

Keep container tightly closed in a dry and well-ventilated place.

Keep in a dry place

**SECTION 8. - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION- - - - -**

**PROTECTION Personal protective equipment**

**Respiratory protection**

Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Hand protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique

(without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### **Eye protection**

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### **Skin and body protection**

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### **Hygiene measures**

General industrial hygiene practice.

#### **Specific engineering controls**

Use mechanical exhaust or laboratory fumehood to avoid exposure.

### **SECTION 9. ----- PHYSICAL AND CHEMICAL PROPERTIES -----**

#### **Appearance**

Form	powder
Colour	white

#### **Safety data**

pH	no data available
Melting point/freezing point	Melting point/freezing point: 220.9 °C (429.6 °F)
Boiling point	no data available
Flash point	no data available
Ignition temperature	no data available
Auto-ignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	no data available
Density	1.410 g/cm <sup>3</sup> at 20 °C (68 °F)
Water solubility	523 g/l at 20 °C (68 °F)
Partition coefficient: n-octanol/water	log Pow: < -3 at 21 °C (70 °F)
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

### **SECTION 10. -----STABILITY AND REACTIVITY -----**

**Chemical stability**

Stable under recommended storage conditions.

**Possibility of hazardous reactions** no data available

**Conditions to avoid** no data available

**Materials to avoid**  
Strong oxidizing agents

**Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx), Sulphur oxides, Sodium oxides  
Other decomposition products - no data available

**SECTION 11. ----- TOXICOLOGICAL INFORMATION -----****Acute toxicity****Oral LD50**

LD50 Oral - rat - > 2,000 mg/kg

**Inhalation LC50**

no data available

**Dermal LD50**

no data available

**Other information on acute toxicity**

no data available

**Skin corrosion/irritation**

Skin - rabbit - No skin irritation - Directive 67/548/EEC, Annex V, B.4.

**Serious eye damage/eye irritation**

Eyes - rabbit - No eye irritation - Directive 67/548/EEC, Annex V, B.5.

**Respiratory or skin sensitisation**

Maximisation Test - guinea pig - Did not cause sensitisation on laboratory animals. - Directive 67/548/EEC, Annex V, B.6.

**Germ cell mutagenicity**

Genotoxicity in vitro - S. typhimurium - Not mutagenic in Ames Test.

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

**Reproductive toxicity**

no data available

**Teratogenicity**

no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**

no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

no data available

**Aspiration hazard**

no data available

**Potential health effects**

<b>Inhalation</b>	May be harmful if inhaled. May cause respiratory tract irritation.
<b>Ingestion</b>	May be harmful if swallowed.
<b>Skin</b>	May be harmful if absorbed through skin. May cause skin irritation.
<b>Eyes</b>	May cause eye irritation.

**Signs and Symptoms of Exposure**

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects**

no data available

**Additional Information**

RTECS: Not available

**SECTION 12. ----- ECOLOGICAL INFORMATION -----**

**Toxicity**

no data available

Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - > 100 mg/l - 24 h Method: Directive 67/548/EEC, Annex V, C.2.  LC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h Method: Directive 67/548/EEC, Annex V, C.2.
Toxicity to algae	EC50 - Desmodesmus subspicatus (green algae) - > 100 mg/l - 72 h Method: OECD Test Guideline 201  NOEC - Desmodesmus subspicatus (green algae) - 100 mg/l - 72 h Method: OECD Test Guideline 201

**Persistence and degradability**

Biodegradability	Result: - According to the results of tests of biodegradability this product is not readily biodegradable.
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**Bioaccumulative potential**

no data available

**Mobility in soil**

no data available

**PBT and vPvB assessment**

no data available

**Other adverse effects**

no data available

**SECTION 13. ----- DISPOSAL CONSIDERATIONS -----**

**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company.

**Contaminated packaging**

Dispose of as unused product.

**SECTION 14. ----- TRANSPORT INFORMATION -----**

**DOT (US)**

Not dangerous goods

**IMDG**

Not dangerous goods

**IATA**

Not dangerous goods

**SECTION 15. ----- REGULATORY INFORMATION -----**

**WHMIS Classification**

Not WHMIS controlled.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

**SECTION 16. ----- OTHER INFORMATION -----**

<b>Issuing Date</b>	09-Feb-2009
<b>Revision Date</b>	25-May-2016
<b>Revision Note</b>	No information available.
<b>Recommended Restrictions</b>	No information available

**Disclaimer**

The information provided on this MSDS 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 as 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 material or in any process, unless specified in the text.

**End of MSDS**