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

DATE UPDATED: AUGUST 17, 2016

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

Product Name Ammonium Chloride

Product Code(s) ADB0034

Recommended Use For Further Manufacturing Use Only
Not for Human or Animal Drug Use

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

Emergency Overview

WHMIS Classification

D2B Toxic Material Causing Other Toxic Effects Moderate eye irritant

GHS Classification

Acute toxicity, Oral (Category 4)
Serious eye damage/eye irritation (Category 2A)
Acute aquatic toxicity (Category 2)
Chronic aquatic toxicity (Category 2)

GHS Label elements, including precautionary statements

Pictogram

Signal word Warning

Hazard statement(s)

H302	Harmful if swallowed.
H319	Causes serious eye irritation.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P273	Avoid release to the environment.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS Classification

Health hazard: 2
Flammability: 0
Physical hazards: 0

Potential Health Effects

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

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

Chemical Name	EC No.	CAS-No	Weight %
Ammonium chloride	EEC No. Present	12125-02-9	95-100

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

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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 firefighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Nitrogen oxides (NOx), Hydrogen chloride gas

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
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Avoid breathing dust.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

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

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
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.

Hygroscopic.

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

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Ammonium chloride	12125-02-9	TWA	10.000000 mg/m3	Canada. British Columbia OEL
		STEL	20.000000 mg/m3	Canada. British Columbia OEL
		TWA	10.000000 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
Remarks	Occupational exposure limit is based on irritation effects and its adjustment to compensate for unusual work schedules is not required			
		STEL	20.000000 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
	Occupational exposure limit is based on irritation effects and its adjustment to compensate for unusual work schedules is not required			
		TWA	10.000000 mg/m3	Canada. British Columbia OEL
		STEL	20.000000 mg/m3	Canada. British Columbia OEL
		TWAEV	10.000000 mg/m3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
		STEV	20.000000 mg/m3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
		TWA	10.000000 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
	Occupational exposure limit is based on irritation effects and its adjustment to compensate for unusual work schedules is not required			
		STEL	20.000000 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
	Occupational exposure limit is based on irritation effects and its adjustment to compensate for unusual work schedules is not required			
		TWAEV	10.000000 mg/m3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
		STEV	20.000000	Québec. Regulation respecting occupational health

			mg/m3	and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
		TWA	10.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		STEL	20.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		TWA	10.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		STEL	20.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)

Personal protective equipment

Respiratory protection

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator.For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. 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

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Specific engineering controls

Use mechanical exhaust or laboratory fumehood to avoid exposure.

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

Appearance

Form	Crystalline powder
Colour	No data available

Safety data

pH	4.5 - 5.5 at 50.00000 g/l at 20.0 °C (68.0 °F)
Melting point/freezing point	340.0 °C (644.0 °F)
Boiling point	No data available
Flash point	Not applicable
Ignition temperature	No data available
Auto-ignition	No data available

temperature	
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapour pressure	1.3 hPa (1.0 mmHg) at 160.4 °C (320.7 °F)
Density	No data available
Water solubility	soluble
Partition coefficient: n-octanol/water	No data available
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
Exposure to moisture may affect product quality.

Materials to avoid
Strong acids, Strong bases, Strong oxidizing agents

Hazardous decomposition products
Other decomposition products - No data available
Hazardous decomposition products formed under fire conditions. - Nitrogen oxides (NOx), Hydrogen chloride gas

SECTION 11. - - - - - - - - - TOXICOLOGICAL INFORMATION - - - - - - - -

Acute toxicity

Oral LD50
LD50 Oral - Rat - 1,650 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

Serious eye damage/eye irritation
Eyes - Rabbit - Eye irritation

Respiratory or skin sensitisation
Will not occur

Germ cell mutagenicity
No data available

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

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion	Harmful if swallowed.
Skin	Harmful if absorbed through skin. May cause skin irritation.
Eyes	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: BP4550000

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

Toxicity

Toxicity to fish	LC50 - Cyprinus carpio (Carp) - 209.00 mg/l - 96 h
	LC50 - Oncorhynchus mykiss (rainbow trout) - 3.98 mg/l - 96 h
	NOEC - Oncorhynchus mykiss (rainbow trout) - 57 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	LC50 - Daphnia magna (Water flea) - 161 mg/l - 48 h
	Growth inhibition NOEC - Daphnia magna (Water flea) - 0.1 mg/l - 216 h

Persistence and degradability
No data available

Bioaccumulative potential
No data available

Mobility in soil

No data available

PBT and vPvB assessment
No data available

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Toxic to aquatic life with long lasting 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)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substances, solid, n.o.s.
(Ammonium chloride) Reportable Quantity (RQ): 5000 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
Not dangerous goods

IATA
Not dangerous goods

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

WHMIS Classification

D2B	Toxic Material Causing Other Toxic Effects	Moderate eye irritant

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- - - - - - - - - - -

Issuing Date	13-Aug-2009
Revision Date	17-Aug-2016
Revision Note	No information available.
Recommended Restrictions	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