Material Safety Data Sheet of Magnesium Chloride Brine

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND COMPANY

1.1. **Chemical identity:**
Magnesium chloride brine - $MgCl_2$

1.2. **Other names:**
Magnesium chloride solution, Bischofite brine, Zechstein brine, nedMag C® liquid, nedMag C® liquid F.Q., nedMag C® liquid P.Q.

1.3. **Common name:**
Not applicable

1.4. **Registration numbers:**
Magnesium chloride CAS 7786-30-3

1.5. **NEDMAG INDUSTRIES Code:**
nedMag C SQ, FQ or PQ

1.6. **Product type:**
Bischofite brine

1.7. **Supplier:**
NEDMAG INDUSTRIES Mining & Manufacturing B.V.
Billitonweg 1
9641 KZ Veendam - The Netherlands
PO Box 241
9640 AE Veendam - The Netherlands
Tel: +31 598 651 911 / Fax: +31 598 651 205

1.8. **Emergency telephone:**
+31 598 651 911

2. COMPOSITION / INFORMATION ON INGREDIENTS

2.1. **Composition:**
Solution of inorganic salts in water, (typical) composition is given:

Component	wt.%	kg/m^3	Component	wt.%	kg/m^3
$MgCl_2$	30.8	400	NaCl	0.38	5
$MgSO_4$	0.46	6	Br^-	0.38	5
KCl	0.31	4			

2.2. **Information on ingredients:**
Not applicable

3. HAZARDS IDENTIFICATION

The material is classified as not hazardous.

4. FIRST AID MEASURES

4.1. **Symptoms and effects:**
The product is low in single dose oral toxicity. Deliberate ingestion of large quantities can cause cramps and diarrhoea. The product is capable of causing minor skin irritation, at most. It is not absorbed through the skin. Therefore it is not significant hazardous upon skin contact.

4.2. **First aid:**

4.2.1. Inhalation:
Not applicable

4.2.2. Skin:
Wash off with water.

4.2.3. Eye:
Immediately wash with water for 15 minutes.

4.2.4. Ingestion:
Low in toxicity. May cause diarrhoea and vomiting when large quantities are ingested.

4.3. **Advise to physicians:**
Not applicable

5. FIRE FIGHTING MEASURES

The product is non-flammable and is not an explosion hazard. Exposed to temperatures above 160°C gives formation of toxic chloride gasses.

6. ACCIDENTAL RELEASE MEASURES

6.1. **Risks and spills**:
Small spillage can be washed away with water, for larger spillage see section 13.

6.2. **Protective equipment**:
No special precautions required other than clean body covering clothes.

7. HANDLING AND STORAGE

7.1. **Handling**:
The product is a concentrated solution of salts in water.
Crystallisation can occur if the temperature drops below 0°C.

7.2. **Product transfer**:
The product is shipped in 20 m^3 self-unloading tank trucks, 1 m^3 containers or in barges.

7.3. **Storage**:
Storage in open or closed tanks. Carbon steel, polyester, polyethylene and polypropylene are suitable materials for construction. When temperature during storage gets below 0°C crystallisation can occur.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1. **Exposure controls:**
Due to the low degree of health hazard anticipated in industrial handling or use, no special precautions are required.

8.2. **Personal protection:**

8.2.1. Respiratory
Not applicable

8.2.2. Hand:
Protective gloves are recommended.

8.2.3. Eye:
Use safety glasses.

8.2.4. Skin:
Normal clean body covering clothes and shoes.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. **Liquid density and pH:**
Density approx. 1.300 kg/m^3. pH is 4-6.

9.2. **Appearance:**
Transparent to slightly yellow coloured solution of salts in water. At low temperatures, it may be partially crystallised.

9.3. **Solubility:**
Very soluble in water.

9.4. **Decomposition:**
Above 160°C chloride gasses are released.

10. STABILITY AND REACTIVITY

10.1. **Stability:**
Product is a stable concentrated solution of inorganic salts in water.

10.2. **Conditions to avoid:**
Temperatures below 0°C can give formation of crystals.

10.3. **Materials to avoid:**
Not applicable

10.4. **Hazardous decomposition products:**
Above 160°C magnesium chloride decomposes in chloride and water. Chloride gasses are toxic.

11. TOXICOLOGICAL INFORMATION

11.1. **Acute toxicity:**
Not applicable.

11.2. **Irritation:**
See section 8.

11.3. **Sensitisation:**
Not applicable.

11.4. **Other toxicological effects:**
Not applicable.

11.5. **Appraisal:**
The material is classified as not toxic.

12. ECOLOGICAL INFORMATION

Magnesium chloride is made from naturally occurring minerals, which are low in toxicity and should present no unusual hazards to the environment under most circumstances. Users of magnesium chloride should abide by all local, state and federal laws and regulations concerning air and water discharges.

13. DISPOSAL CONSIDERATIONS

Small amounts of magnesium chloride can be washed away with water. For large amounts always comply with local, state and federal laws and regulations. Local Dutch chemical waste codes are WCA:B31 and KCA:V/I.

14. TRANSPORT INFORMATION

14.1. **IMO-ADR / RID-IATA / ICAO**

UN number	Not applicable
Class	Not applicable
Packing group	Not applicable
Item	Not applicable
Symbol	Not applicable
Kemler plate	Not applicable
Proper shipping name	Magnesium chloride brine

15. REGULATORY INFORMATION

Classified as not hazardous

16. OTHER INFORMATION

For more information, contact address in section 1.7. The information contained in this Material Safety Data Sheet is believed to be reliable. No guarantee implied or expressed regarding the accuracy of this information or the use of the product since the conditions for use are beyond our control.

Nothing contained in this document should be construed as a recommendation to use this product in conflict with existing patents covering any material for its use.

Veendam, The Netherlands
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