

IRISH INDUSTRIAL EXPLOSIVES	MATERIAL SAFETY DATA SHEET	DATE	07/10
	Emulsion Matrix	AUTHORISED	P Cosgrove
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1. PRODUCT AND COMPANY IDENTIFICATION

Trade Names:	Emulsion Matrix
Product Description:	Emulsion matrix is an aqueous solution of ammonium nitrate emulsified in oil.
Recommended Use:	Emulsion Matrix is used as precursor to produce explosives.
Manufacturer/ Supplier:	IRISH INDUSTRIAL EXPLOSIVES LTD
Address:	Unit H11 MAYNOOTH BUSINESS CAMPUS, MAYNOOTH, CO KILDARE
Telephone Number:	01 6549900
E-mail Contact:	pcosgrove@kemek.ie
Emergency Telephone Number:	087 2307669

2. HAZARD IDENTIFICATION

Main Hazards:	The product is Oxidising (O)
Health Effects – Eyes:	May cause irritation.
Health Effects – Skin:	Repeated skin contact may de-fat the skin resulting in possible irritation and dermatitis.
Health Effects Inhalation	Not applicable
Health Effects – Ingestion:	Ingestion in small quantities unlikely to cause toxic effects.

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3. COMPOSITION/INFORMATION ON THE COMPONENTS

Product's Significant Hazardous Ingredients

	EINECS / CAS Number	Hazard Symbols	Risk Phrases	Kemex 70 (%)
Ammonium Nitrate	EINECS 229-347-8 CAS 6484-52-2	O	R8, R9	60-80
Process oil	EINECS 265-148-2 CAS 64742-46-7, or EINECS 265-158-7 CAS 64742-55-8	X _n	R65	2.5-4.5
Sodium Nitrate	EINECS 231-554-3 CAS 7631-9-4	O, X _n	R8, R22, R36	<15
Thiourea	EINECS 200-543-5 CAS 000062-56-6	X _n	R40, R63, R22, R51, R53	<0.5
Polyolefin Aminoester			R52	<1

- See section 16 for meaning of R phrases.

4. FIRST AID MEASURES

- First Aid – Eyes:** Irrigate thoroughly with water for at least 15 minutes
- First Aid – Skin:** Wash thoroughly with soap and water
- First Aid – Ingestion:** Immediately drink plenty of water and seek medical advice
- First Aid – Inhalation:** Remove person to fresh air. If symptoms persist seek medical advice.
- Advice to Physicians:** **Eyes** – Continue irrigation treatment as for chemical burns
Ingestion - Mild cases of methaemoglobinaemia will lead to cyanosis and in more severe cases may produce unconsciousness. After measuring the methaeglobin level, if cyanosis is present, inject 0.1-0.2 ml/kg body weight 1% methylene blue injection USP very slowly over several minutes. A more rapid injection rate leads to the formation of additional methaemoglobin. Repeat methaemoglobin measurement and repeat methylene blue injection depending on results.

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5. FIRE FIGHTING MEASURES

Extinguishing Media: Use water based extinguishers to prevent fire reaching the emulsion matrix

Special Hazards of Product: Although not flammable, the emulsion matrix may assist fire. In a fire the product will undergo decomposition. If the emulsion is confined and subject to fire for a period it may detonate.

When large quantities of emulsion are involved in advanced or massive fires, control efforts should be confined to limiting further explosions. Fire personnel should secure hose nozzles in fixed positions or setup unmanned portable or fixed turrets and then withdraw to a safe distance. For fires at sea use 'Fire Schedule "Hotel" in the IMDG code supplement.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear gloves and overalls

Environmental Precautions: Do not allow to enter a water course

Spillages: Spillages at the point of use should be scooped up, e.g. with a plastic shovel. Other disposal methods are referred to in section 13.

7. HANDLING AND STORAGE

Handling: No smoking – no sources of ignition. Keep product clean and free from contamination

Storage: Store away from combustible materials. Any storage of product in a container or package would need to comply with the Explosives Act 1875 and all other applicable legislation.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

UK Occupational Exposure Standards: Mineral Oil (EH40/2002)
8hr TWA is 5 mg/m³
STEL 8 mg/m³

Respiratory Protection: Not applicable

Hand Protection: Wear gloves. Suitable gloves may include: Nitrile, Neoprene, Fluor-elastomer or PVC

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Eye Protection: Wear safety glasses/goggles
Body Protection: Wear overalls.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Viscous fluid/gel.

Colour: Translucent yellow/white

Odour: Slightly oily smell.

pH: Ca 4

Explosive Properties: Emulsion Matrix is not an explosive but may be turned into explosives by appropriate methods of sensitisation.

Oxidising Properties Classified as an oxidising agent

Solubility in Water (kg/m³): Essentially insoluble, though water will leach ammonium nitrate out of the Emulsion Matrix over time

Density (kg/m³): 1300 – 1400

Decomposition Temp. (°C): > 150 °C

10. STABILITY AND REACTIVITY

Stability: Stable at normal temperatures, but will crystallise within 2/3 months. This is not a hazard but may make the product unsuitable for use.

Conditions to Avoid: Do not store at temperatures in excess of 50C

Materials to Avoid: Avoid contact with combustible substances

Hazardous Decomposition Products: Oxides of Nitrogen and Carbon, including Carbon Monoxide

11. TOXICOLOGICAL INFORMATION

Eyes: May cause irritation following contact.

Skin: Mildly irritant. Prolonged and repeated contact may be harmful to the skin. Prolonged and repeated contact with the fuel oil present in Emulsion Matrix may lead to more serious skin

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disorders including skin cancer.

Inhalation: Avoid breathing vapours as in high concentration these may be irritating

Ingestion: The following are LD50 values for ingredients in Emulsion Matrix

Emulsion Matrix:

Ammonium Nitrate >2,000 mg/kg (rat)

Process Oil >5,000 mg/kg (rat)

Thiourea >1,750 mg/kg (rat)

Sodium nitrate >4,300 mg/kg (rat)

The ingestion of ammonium nitrate can produce methaemoglobinaemia (see section 4).

CMR Effects: Thiourea has limited evidence of a carcinogenic effect and is classified as carcinogenic cat 3

12. ECOLOGICAL INFORMATION

Ecotoxicity: None

Mobility: Emulsion Matrix is a viscous liquid. The water soluble Ammonium nitrate will be leached out of the Emulsion Matrix by water over time.

The mobility of the various ingredients:

Ammonium Nitrate: When not protected by the emulsion, the ammonium nitrate dissolves freely in water.

Thiourea: Soluble in water when not protected by the emulsion sodium nitrite: readily soluble in water when not protected by the emulsion.

Persistence/Degradability: **Ammonium Nitrate:** The ammonium nitrate follows the natural nitrification/denitrification cycle.

Process oil: Readily biodegradable.

Bioaccumulation Potential: Ammonium nitrate does not show any bioaccumulation potential

13. DISPOSAL

Product Disposal: Contact supplier

14. TRANSPORT INFORMATION

Irish Transport Information: The product is transported in accordance with the appropriate regulations. For road there is the Carriage of Dangerous Goods by Road Regulations 2007 SI 288, These are aligned with ADR, as required by Council directive 2008/68/EC, but may have additional requirements /modifications

EU Transport : Road transport must be in accordance with ADR 2009

UN Number : 3375

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UN Class : 5.1

ADR Description: Ammonium Nitrate Emulsion, Intermediate for blasting explosives, solid.

UN Packing Group II

ADR Packaging Group II

IMDG Proper Shipping Name Ammonium Nitrate Emulsion, Intermediate for blasting explosives

IMDG Packing Group II

IMDG Class 5.1

IMDG Ems No.: F-H, S-Q

Labelling Information: Labelled in accordance with CPL regulations S.I No 116 of 2003 (substances) and S.I No 62 of 2004 (preparations), as amended and the Carriage of Dangerous Goods by Road Regulations 2007.

15. REGULATORY INFORMATION

Hazard Symbols, Risk Phrases and Safety Phrases

Product	Hazard Symbols	Risk Phrases	Safety Phrases
Emulsion Matrix	O, X _n	R8	S17

Irish Legislation: Carriage of Dangerous Goods by Road Regulations 2007.SI 288.
Explosives Act 1875.
Safety, Health and Welfare at Work (Quarries) Regulations (2008)
CPL regulations S.I No 116 of 2003 (substances) and S.I No 62 of 2004 (preparations), as amended

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16. OTHER INFORMATION

MSDS first issued: 03/99
This issue is an update modifying the whole of the document.

**Meaning of R
phrases**

R8	Contact with combustible material may cause fire.
R9	Explosive when mixed with combustible material.
R22	Harmful if swallowed.
R36/37/38	Irritating to eyes, respiratory system and skin.
R40	Limited evidence of a carcinogenic effect.
R51/53	Toxic to aquatic organisms, may cause long term adverse effect in the aquatic environment.
R52/53	Harmful to aquatic organisms, may cause long term adverse effect in the aquatic environment.
R63	Possible risk of harm to the unborn child.

Meaning of S phrases

S17	Keep away from combustible materials
S36/37	Wear suitable protective clothing and gloves.
S61	Avoid release to the environment. Refer to special instruction/safety data sheets.

Notice: **FOR FURTHER INFORMATION CONTACT IRISH INDUSTRIAL EXPLOSIVES
CUSTOMER SERVICES DEPARTMENT.**
