

- IDENTIFICATION

Commercial identification:

**PACKAGED EXPLOSIVE EMULSIONS
EMULSTAR 8000 PLUS AND EMULSTAR 8000 UG
EMULSTAR M -40**

Chemical identification: without purpose, mixture

Supplier: **TITANOBEL**

Rue de l'industrie 21270 PONTAILLER SUR SAÔNE

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E-Mail address of the person in charge and competent for this SDS

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Trade name	CE type attestation's number:
Emulstar 8000 PLUS	0080.EXP.01.0037
Emulstar 8000 UG & Emulstar M -40	0080.EXP.01.0038

Use of the product:

These emulsions are mainly used in knocking down of rocs in quarries, mines and public labour works. (SU2a: i.e.: mine concern)

VI index n°: without purpose

CAS n°: without purpose

REACH record n°: without purpose (mixture)

2 - HAZARDS IDENTIFICATION

- Danger of mass explosion, i.e. affecting quasi immediately the whole load.

- In case of fire, risk of violent reaction with possible emission of harmful gases (nitrogen oxides NOx and carbon monoxide)

- Contact with eyes: irritating

- Although these explosives hardly burn, it is recommend not to subject these products to an intense heat or any sources of spark.

Storage classification of explosive

Classification in risk division 1.1 compatibility group D according to decree dated April 20th, modified 2007.

Hazard pictograms



E : Explosive - **risk of explosion by shock, friction, fire or other sources of ignition**

- Hazard statements

H201: explosive ; risk of mass explosion

H319: Causes serious eyes irritation

3 - COMPOSITION/INFORMATION ON THE COMPONENTS

Hazardous components contained in the mixture	Rate	Danger symbol	N° CAS	N° EINECS	Hazard statements
- ammonium nitrate	nearly 70 %	O	6484-52-2	229-347-8	H272, H319
- sodium nitrate	< 20 %	O	7631-99-4	231-554-3	H319
- water					
- Fuel phase			8012-95-1		
- aluminium granulate			7429-90-5	231-072-3	

- Meaning of the **hazard pictograms**: O: Oxidant. **Contact with combustible material may cause fire**

Codes for the hazard statements H272: **may intensify fire**

H319 : **cause serious eye irritation**

4 - FIRST AID MEASURES

4.1 - General **advice**

In any case, see immediately a doctor

In case of fire , symptoms may appear bound to inhalation of combustion gases

Bring the person outside the contaminated area

If possible, give a dexaméthasone spray for inhalation

If necessary, give some oxygen

In case of fainting, lay out and carry the person in a lateral stable position

In case of breathing stop, practise the artificial breath.

After aspiration of dusts, carry the wounded person outside to get fresh air, not polluted

If symptoms persist, for example caught see a doctor

Persons who breath combustion gases do not necessary present immediately some intoxication symptoms

Patients must leave at least 48 hours under control

4.2 - **In case of skin contact**

Wash with water and if necessary see a doctor

4.3 - **In case of eyes contact**

Wash immediately and rinse abundantly with water within separating the eyelids during at least 15 minutes and consult a specialist

4.4 - If swallowed, do not give something to drink

4.5 - Protection of rescuers: avoid extended contact with skin and extended dust inhalation

5 - FIRE FIGHTING MEASURES5.1 - General indications

Keep away all persons who are not allowed to be there
Inform the neighbours about the explosion's danger

5.2 - Extinction method nearly (the product is still not touched)

Fight against fire with all available ways (water, dry powder extinguishing, etc...)

In any case, avoid the fire reaches the product / material

When needed, drive all vehicles away from the fire

5.3 - Measures to take in case of fire on the product (the fire reaches the product or is going to)

Do not try to extinguish the fire, risk of explosion!

Evacuate immediately the dangerous area and look for shelter

Inform the neighbours about the explosion's danger

5.3.1 - Adapted extinguish way

Do not try to extinguish the fire, risk of explosion!

5.3.2 - Extinguish ways not to use against fire because of safety no purpose5.4 - Specific dangers bound to mixture, its combustion products or gases

In addition to the explosion danger, in case of fire or heat, dangerous harmful gases emanation and vapour; as well as development of pyrolysis products, for example, carbon monoxide, nitrogen oxides (nitrated gases), ammoniac, must be expected

Don't breathe the gases / vapour / fumes of the explosion and/or the fire. Risk of development of harmful oedema on lung

Extinguish way:

Possibility by flooding with big quantity of water in case of the beginning of fire.

In case of fire of the product in the warehouse or during the transport: do not intervene, but quickly go far from the fire and close the accesses.

Note: protection of persons who intervene: isolating respiratory devices because of the emission of harmful gases (nitrogen oxides NOx and carbon monoxide).

6 - ACCIDENTAL RELEASE MEASURES6.1 - Avoid contact with the unpackaged product with skin and eyes6.2 - Personal precautions

In case of break of the plastic tube, collect carefully and with adapted individual protection (see § 8)

6.3 - Environmental precaution

In case of accidental spreading, do not leave the widespread product. Do not discharge to dumps or sewers and check if the product is identified on the container.

6.4 - Cleaning up methods

Carry out in a plastic bag recommended by **the supplier**, respecting all safety measures bound to manipulation (§ 14) and write on the packaging the identification of the product. Then, clean meticulously the ground using much water.

In case of some particular problem **or when in doubt**, contact **the supplier**.

7 - HANDLING AND STORAGE7.1 - Handling

Technical measures and precautions: during these operations, keep the product away from heat, flames and sparks, avoid any impact or friction. It is formally forbidden to smoke and to use naked fires.

Using advice: avoid contact with incompatible matters (see § 10). Avoid contact with skin and eyes.

7.2 - Storage

Technical measures: eliminate defect packaging

Storage conditions: packaging must be piled in a stable way shielded from bad weather

Storage period: in standard storage conditions (in particular shielded from the bad weather) and although no limit of preservation is imposed, it is recommended to use these explosives within 12 months following the date of production

Incompatible matters: do not store with products out of class 1 as well as products from class 1 but which compatibility group would be different from D or S.

Packaging material: the storage will be made in packaging recommended by Titanobel with the maximum net weight specified (see § 14)

7.3 - Specific end use(s)

Comply with the **existing laws** (see § 15) and the technical sheet of the product

8 - EXPOSURE CONTROLS / PERSONAL PROTECTION8.1 - V. L. I. without purpose8.2 - V. L. E. P.

Nothing to point out in usual using conditions. Nowadays, no exposure limit value for ammonium nitrate, the sodium nitrate and the aluminium granules

8.3 - Individual protection equipment

- Protection of the body: suitable working clothes and leather gloves
- Specific hygiene measures: do not eat, drink with contaminated hands.
- Protection of the eyes: it is recommended to wear glasses

9 - PHYSICAL AND CHEMICAL PROPERTIES

9.1 - Appearance / odor

The explosive appears as a thick paste packaged in a plastic tube to constitute a cartridge

Colour of the mixture: white "creamy" for both explosives

Odour: no odour

Specific temperatures for change of physical state

Softening over +50° C. If you keep it at nearly +60° C that may bring a settling of the product followed by a partial crystallization which can in some cases make the explosive inoperative (these explosives are stable chemically at this temperature and don't present particular danger)

Flash point: no purpose

9.2 - Important safety indications and sanitary and environment protection

Real acidity value (pH)	not applicable
Melting point / Freezing point	not applicable
Initial boiling point/boiling range	not applicable
Flammability	not applicable
Explosion risk	can explode, especially with impurities, firing inclusion or strong heat
Burning characteristic	not applicable
Vapor pressure	not applicable
Partition coefficient (n,-octanol/eau)	not applicable
Viscosity	not applicable
Vapor density	not applicable
Vaporization speed	not applicable
Relative density	1.20 to 1.30 g/cm³ (20° C)
Solubility	Pretty insoluble in water

9.3 - Pyrotechnical Safety Characteristic

Auto-inflammation temperature by progressive heating:

Test SNPE 47 (PV/47/14/03/002) (GEMO FMD - 051 - A - 1) (CSE 3.02/F2)	Vapours and fumes at 247° C
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Behaviour of explosive in bulk:

- Sensitivity to friction

Test SNPE 16 (PV 16/14/03/005) (GEMO FMD - 040 - A - 1) (CSE 3.51/J1)	0 % positive knocks at 353 N
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- Sensitivity to shock drop weight 30 kg

Test SNPE 17 (PV/17/14/03/004)

height of falling without reaction	≥ 4 m
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- Outdoors explosion in gutter

Test SNPE 20 (GEMO FMD - 061 - A - 1) (CSE 3.21/L1)	No inflammation
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- Sensitivity to firing: sensitive to detonator n° 8, in 25 mm diameter cartridge

Density:	≈ 1,20 à 1,30
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10 - STABILITY AND REACTIVITY

10.1 - Conditions to avoid

Mechanical influences (for ex. shock, crushing, friction, collision)

Fire, sparks or any other ignition sources

Temperatures higher than 50° C

Contact with substances pointed out in paragraph 10.4

10.2 - Chemical Stability

In normal storage conditions, the product is stable chemically. However, in case of an anomaly in appearance or behaviour of the explosive (gazing freeing, strong odour, significant segregation, warming), the product must be isolated and the anomaly must be immediately pointed out to the technical department of Titanobel

10.3 - Dangerous decomposition products

In the event of fire and/or failure to comply with some of the following prescriptions: possibility of freeing of nitrogen oxides and carbon monoxide

10.4 - Incompatible materials

Avoid contact with alkalis, amines, strong acids, alkaline metals, copper and zinc their alloys and washing powder. Do not storage with products of the Class 1 which group of compatibility would be different from D or S

10.5 - Warning:

Pay particular attention to the increase of the sensitivity to shock and friction of this explosive especially when it is dry. Avoid contact with alkalis, amines, strong acids, alkaline metals, copper, zinc and washing powders. Do not store with products out of Class 1 as well as with products which compatibility group will be different from d or S.

11 - TOXICOLOGICAL INFORMATION

11.1 - Acute toxicity: until this day, no evaluation has been made on the mixture

11.2 - Exposure way: Ingestion, inhalation, eyes and skin

11.3 - Acute effects / symptoms

Following symptoms have been pointed out:

For oily phase, fuel and gasoline:

- Weakly inflaming for skin
- Weakly inflaming for eyes

For mineral nitrates:

- Weakly inflaming for skin
- Weakly inflaming for eyes

11.4 - Chronicle effect: after prolonged or repeated exposure/contact: eruption or dermatosis

11.5 - Substances/ individual components

Ammonium Nitrate

Oral acute toxicity (LD₅₀, rat (mg/kg)) = 2217

Dermal acute toxicity (LD₅₀, rat (mg/kg)) > 5000

Weakly irritation/caustic effect (for skin and eyes)

After ingestion, trouble gastro-intestinal, possibly development of methemoglobine after reduction (desoxidation) from nitrate in nitrite, cyanosis.

12 - ECOLOGICAL INFORMATIONS

Until this day, no evaluation has been made on the mixture

12.1 - Ecotoxicity

Ammonium nitrate:

Toxicity for fishes: mainly depending on the real acidity value (pH) and the kind of fish

LC₅₀ = 74 mg/l/48 h (Cyprinus carpio)

Toxicity for water flea:

EC₅₀ = 555 mg/l/ (Daphnia magna)

Toxicity for algae:

EC₅₀ = 83 mg/l/ (Scenedesmus quadricauda)

Oils/emulsifiers/fuel/gasoline: harmful for water organisms and can bring harmful effects for the aquatic environment on the long-term

12.2 - Persistence and degradability

The ammonium nitrate is a substance existing in an ionogène shape and also in the natural life cycles (for example nitrogen) and can easily transform in other elements of these life cycles. Nevertheless, see § 12.5 This fuel/gas-oil is biodegradable

12.3 - Potential of bioaccumulation

The potential bioaccumulation of the mixture is very low because those of the raw material is also very low

12.4 - Results of the evaluation of PBT's properties (persistent, bio-accumulable and harmful)

Until this day, no evaluation has been made

12.5 - Other harmful effects

Excessive supply of ammonium nitrate can bring eutrophisation of water and over fertilisation of the ground. The handling of this substance must be imperatively carefully made. By care in handling this product and a using complying prescriptions, there will be no harmful effect possible

13 - DISPOSAL CONSIDERATIONWaste and residue

The product must not be abandoned, it must be collected in order to be evacuated in accordance with the recommendation stipulated in paragraph 6 the, stored under supervision according with recommendations stipulated in paragraph 7. If only a small quantity is involved, the recovered product can be destroyed after establishment of a particular register by the operator, by placing it in contact with primed charges

For significant quantities: consult the supplier's distribution depot who will supply with information of recovery conditions.

Do not mix up with other incompatible residue (see paragraph 10).

In any case, comply with the regulation in force. In the event of difficulties, it is advised to take contact with Titanobel. It is recommended to use this product within one year after the date of production.

Soiled packaging

The packaging contaminated by traces of product will be carefully examined to check that they are empty and burn on the sites of use nowadays' best technique (see BREF-OFC), in accordance with the safety instructions of the establishment, or shipped back to Titanobel according to the conditions defined between the two parties to be treated inside the destructions' channels.

14 - TRANSPORT INFORMATION

Classification to transport in recognized packaging

Official description for transport :

MINE EXPLOSIVE (BLASTING) E TYPE

- Road ways: RID and ADR

UN N° 0241 - 1.1 D

- Maritime ways: IMDG code

UN N° 0241 - 1.1 D

- Aerial ways: classification OACI

Forbidden to transport

Recognised packaging:

- Cartridge in plastic tubes

- Packaging method: P 116

- External packaging in cardboard boxes 4 G

- Maximal net weight mass: 25 kg

15 - REGULATORY INFORMATION

Symbol	E	Explosive
<u>Codes for the hazard statements</u>	H 201	Explosive, risk of mass explosion
	H 319	Cause serious eye irritation
<u>Precautionary statements</u>	P 210	Keep away from heat, hot surfaces /sparks/open flames/ other sources of ignition - No smoking
	P 250	Do not subject to grinding/shock/friction
	P 280	Wear protective gloves, protective clothing / eye protection / face protection
	P370+P380	In case of fire, evacuate the area
	P 372	Risk of explosion in case of fire
	P 373	In case of fire and/or explosion, do not breathe the fumes
	P302+P352	In case of contact with skin: wash thoroughly with water and soap
	P305+P351+P338	In case of contact with eyes: rinse carefully with water during several minutes. Keep off contact lens if the victim has some and if they can easily be removed. Go on rinsing.
	P 401	Store in accordance with regulations
	P 501	Eliminate the content/packaging by cremation in an installation according to regulations

EUROPEAN REGULATIONS

ADR (transport regulation)

Directive 67/548/EEC (Dangerous substance Directive)

Directive 1999/45/EC (Dangerous preparation Directive)

Directive 2008/98/EC (Waste Framework Directive)

Regulation 1907/2006/EC (REACH)

Regulation 1272/2008/EC (CLP)

Directive 2014/28/UE

National regulations for approval must be respected.

This list is not exhaustive and does not, in any case, dispense user from taking account of the whole official laws applying to his activity.

16 - OTHER INFORMATIONS / WARNING

This form fills up the technical manual of use but don't replace it. The information is based on our knowledge relative to the concerned product, at date which is indicated. They are given in good faith. The attention of the users is pointed out on the possible risks incurred when the product is used to other employment than those for which it is conceived.

Particularly, these products must be handled only by operators having knowledge of the explosives in accordance to regulation and the usual rules of trade; they are intended to be used as explosives for blasting rocks in mines, quarries and public works.

For any other use or particular use, Titanobel takes no responsibility,

It is up to the user under its own responsibility to do as follows:

- elaborate the safety measures regarding the use of the products taking in account especially the data of this form,
- reflect to all users and all handlers the adapted safety data and warn against the risks mentioned in the whole documentation relative to the use of these products.
- to make sure that the users who are going to handle/or use these products are trained to their use and their handle.

This enumeration must be in no case considered as exhaustive. It does not exonerate the recipient from checking that no other duty is prescribed by regulation other than those mentioned and especially those able to govern his own activity regarding possession and handling of explosives for which he is the only responsible.

The technical departments of Titanobel are at the disposal of the users to bring, within the limits of their knowledge assistance on the topics.

Nota : modifications facing the previous version appear **in bold characters**