

1 - IDENTIFICATION

Commercial name of the products:

**BLACK POWDER IN FLOUR FORM
MUSKET
FINE GRAIN
BLACK POWDER WITHOUT SULFUR**

Chemical designation : no purpose, mixture

Supplier: TITANOBEL

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Emergency call number from approved organization (INRS):
33.1.45.42.59.59 (ORFILA)

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Products	CE type agreement number:	Agreement numbers:
Black Powder in flour form	0080.EXP.97.0052	P 338 F
Musket	0080.EXP.97.0050	P 339 F
MC 30, MC30 and Black powder 5 FA	0080.EXP.97.0053	P 340 F
Fine grain	0080.EXP.97.0051	P 337 F
Black powder without sulfur	0080.EXP.97.0054	P 341 F

VI index n°: without purpose

CAS n°: without purpose

REACH record n°: without purpose (mixture)

Use of the product : These black powders are explosives mainly used for the manufacturing of entertainment fireworks or as propulsive loads for ancient arms.

2 - HAZARD IDENTIFICATION

Danger of mass explosion, i.e. affecting almost the entire loading quasi instantaneously. If a fire occurs, you'll have a risk of violent reaction with possible harmful gas emission (azoth oxides NOx and carbon monoxide).

Contact with eyes : irritation.

Stocking classification of the powder in its carriage package

Classification in risks' division 1.1 - compatibility group D according to decree dated April 20th, modified.**Hazard pictogram****E : Explosive****Hazard statements**

H201: Risk of explosion by shock, friction, fire or any other sources of ignition explosion risk due to shock, friction, fire or other ignition sources

3 - COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous components contained in the mixture	Rate	Hazard Symbol	N° CAS	N° EINECS	Hazard statement
- Potassium nitrate	> 70 %	O	7757-79-1	231-818-8	R 8
- Sulphur		Xi	7704-34-9	231-722-6	R 38
- Charcoal			7440-40-0		

- Meaning of the **hazard** symbol:

O: Contact with combustible material may cause fire

Xi: irritating

- **Codes for the hazard statement:****H272: contact with combustible material may cause fire****H315: causes skin irritation ; skin corrosion/skin irritation - class 2****4 - FIRST AID MEASURES****4.1 - General advice**

In any cases, consult immediately a doctor.

In case of fire, symptoms may appear obviously caused by inhalation of combustion gas.

First of all, move the injured far away from the hazardous zone

If possible, give a dexamethasone aerosol for inhalation

If necessary, give some oxygen

In case of blackout, lay down and carry the person in a lateral stable position

In case of respiratory stopping, practice artificial respiration

After inhaling of dust, bring the injured outside so he can breathe in open air without pollution

If the symptom persist, for example caught, consult a doctor

Persons who inhale combustion gases do not necessary present immediately some intoxication symptoms. The patient must stay minimum 48 hours under overseeing.

4.2 - In case of skin contact Rinse with water and, if necessary, consult a doctor.

4.3 - In case of eye contact: rinse immediately and abounding at least 15 minutes keeping eyelids open. Consult and ophthalmologist.

4.4 - If swallowed, don't give something to drink

4.5 - Protection of rescuers: avoid any extending contact with skin and extending inhalation of dusts.

5 - FIRE FIGHTING MEASURES**5.1 - General Indications**

Keep unauthorized persons away. Warn neighborhood announcing risk of explosion

5.2 - Closeness fire fighting measures (the product isn't touched yet)

Fight the fire with all means available (water, extinguisher with dry powder, etc...) Avoid the contact of fire with product/material
If necessary, move away all vehicles from the seat of the fire

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

Don't try to extinguish the fire, risk of explosion

Evacuate immediately the hazardous zone and look for a shelter

Inform neighbors about the danger of explosion

5.3.1 - Appropriate extinguish means

Don't try to extinguish the fire. Risk of explosion

5.3.2 - Means to extinguish you must not use because of safety reasons

5.4 - Special danger bound to mixture, combustion of products or gave off gas

In addition to the risk of explosion, in case of fire or heat, you have to include the give off toxic/dangerous gas, vapors together with forming of pyrolysis products for example carbon monoxide, azoth oxides (nitrous gas), ammoniac.

Don't breathe the gas/vapors/smokes from the explosion and/or from the fire

Risk of a toxically oedema at the lungs.

Extinguishing method:

Douse with large quantities of water in case of beginning of the fire

In case of fire of the product in the warehouse or during carriage: don't intervene but move quickly away till you reach the necessary safety distance and block the accesses.

Remark: protection for the interveners: isolating breathing apparatus because of harmful gas emission (azotes oxides NOx and carbon monoxide)

6 - ACCIDENTAL RELEASE MEASURES

6.1 - Avoid contact of nude product, with skin and eyes. Don't breathe the product's dusts.

6.2 - Personal precautions

Collect carefully and with the adapted individual protection (see section 8), previously don't forget to dampen the product. Avoid especially any dirt with foreign bodies (like gravel, iron filings, metal bodies,...) because of the sensitivity of these products to mechanical appeals.

6.3 - Environmental precautions

Should the package have been opened accidentally, don't leave the spread product. Don't evacuate it to a garbage depot or to the sewers then check the product is identified on the container.

6.4 - Cleaning up methods

It is recommended to dampen previously the product in order to reduce the risk of ignition.

Collect in a packaging recommend by **the supplier** (see section 14) in accord with the safety measures bound to handling and transfer the identification of the product on the new packaging. Then, carefully wash the ground with large quantities of water.

Contact **the supplier** if specific problems are encountered **or when in doubt**.

7 - HANDLING AND STORAGE

7.1 - Handling

Technical measures and precautions: during all handling operations, keep the product away from sources of heat, flames and sparks, avoid all shocks, frictional contact and any risk of electrostatic discharge.

Install a screen between the worker and the product in order to reduce thermal flows to the work station in the event of ignition.

Caution: avoid dust development

Using advise: avoid any contact with chemically incompatible matters (see § 10)

7.2 - Storage

Technical measures: eliminate defect packaging

Storage condition: packaging must be piled in a stable way shielded from bad weather. When the handling is made by hand, the bottom of the packaging must not be at more than 1.60m above the floor. When handling is made mechanically, piles must not be higher than 3m.

Preservation delay: better use before

- Within 3 years up from the date of manufacturing for products stored in plastic bags inside cardboard boxes.
- Within 5 years up from the date of manufacturing for products stored in plastic cans

Incompatible matters: do not store with products out of class 1 and with products from class 1 but which compatibility group will be different from D or S

Packaging material: store in Titanobel approved containers, with maximum net weight clearly indicated (see section 14).

7.3 - Specific end use(s)

Comply with instruction manual of loading of used guns, technical data sheet and **the existing laws**. (see section 15).

8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 - Individual Value Limit without purpose

8.2 - Personal Exposition Value Limit

Nothing to point out in standard conditions of use. There's currently no exposition value limit for the potassium nitrate, the sulphur and the charcoal.

8.3 - Approved personal protection equipment

- Eyes protection: it is recommended to wear glasses

- Body protection: all handlings must be realized with adapted gloves and working clothes (it's recommend to use fireproof material).

In any case, never wear clothes that are easily flammable and/or liable to melt under influence of incandescent particles projection.

9 - PHYSICAL AND CHEMICAL PROPRERTIES

9.1 - Appearance and odor

These powders are presented in very thin grains.

Mixture color: black or grey

Odor: odorless

Specific temperatures in case of change of physical state: no purpose (there will be inflammation before)

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
Risk of explosion	can explode, especially with impurities, energizing inclusions or heavy heating
Burning characteristics	not applicable
Vapor pressure	not applicable
Partition coefficient (n,-octanol / water)	not applicable
Viscosity	not applicable
Vapor density	not applicable
Spraying speed	not applicable
Solubility:	soluble in water

9.3 - Pyrotechnical safety characteristics

- Auto-inflammation temperature by sudden heating : Test SNPE 43 (FE/ 43/ 14/ 80/ 009) (GEMO FMD - 452 - A - 2)	426° C **
- Auto-inflammation temperature by progressive heating: Test SNPE 47 (FE/47/14/81/004) (GEMO FMD - 051 - A - et CSE 3.02 / F2)	261° C****
- Sensitivity to electrical spark Test SNPE 37 B (FE/37B/03/84/015) (FE/37B/03/84/014)	≥726 J ≥726 J
- Sensitivity to friction Test SNPE 16 (NT VG/1/7/75 et FE/16/14/88/005) Test d'agrément: CSE 3.51 / J1 (GEMO FMD - 040 - A - 1)	No reaction at 353 N ***
- Sensitivity to shock au choc - Test to shock drop weight of 30 kg Test SNPE 17 (FE 17/14/80/008) (GEMO FMD - 010 - E - 2 et CSE 3.44/ I4)	
height of no propagation	≥ 4 m *
height of no reaction	3,25 m*
- Deflagration in open air gutter Test SNPE 20 (FE 20/003/80) (GEMO FMD - 061 - A - 1 et CSE 3.21 / L1)	2000 mm/s *
- Priming of the detonation through a fence Test SNPE 27 (FE/27H/14/79/001) (GEMO FMD - 031 - A - 1 et CSE 3.75/P5)	≤ 1 card *
* Values obtained on a thin powder (HE 003 A Index 7 - SNPE)	
Apparent volumic Mass of the granulated powders	350 à 1000 kg/m3

10 - STABILITY AND REACTIVITY

10.1 - Conditions to avoid

Mechanical influences (for example shock, crushing, friction, collision)	Temperatures over 50° C
Fire, sparks or any other ignition sources	Contact with substances described in section 10.4

10.2 - Chemical stability

In normal storage conditions, the product is stable chemically. Nevertheless, in case of abnormality the product has to be placed in confinement and the anomaly must be immediately communicated to the technical department of Titanobel.

10.3 - Dangerous decomposition products: Non pertinent (See sections 3 et 5)

10.4 - Incompatible materials:

Avoid contact with alkalis, amines and strong acids or oxidizing agent, detergents. Do not store with hazardous matters belonging to classes different from 1. Do not store with products from class 1 which compatibility group would be A, B, F, H, J, L.

11 - TOXICOLOGICAL INFORMATION

11.1 - Intense Toxicity Nowadays, no evaluation has been done on the mixture.

11.2 - Exposition way Ingestion, inhalation, eyes and skin.

11.3 - Intense effects / symptoms

- Lightly irritating to skin
- Lightly irritating to breathing ways (cough / asthma)

- Lightly irritating to eyes /redness of ocular tissue

Following symptoms have been pointed out:

For potassium nitrate:

- cephalous/ breathing difficulties
- vomiting/nausea
- stomach pains
- irritation of mucous membrane
- abdominal pains

11.4 -Chronic effects After exposure /extended or recur contact: eruption / dermatitis

11.5 - Substances / Individual components

Intense toxicity: (sulphur)

Oral acute toxicity, LD₅₀, rat > 2000 mg/kg

Inhalation, LC₅₀, 4h, rat > 9,23 mg/

Dermal acute toxicity, LD₅₀, rat > 2000 mg/kg

12 - ECOLOGICAL INFORMATIONS

Nowadays, no evaluation has been done on the mixture. Do not through in the sewers, neither in natural environment.

12.1 - Ecotoxicity

Potassium nitrate

CL₅₀ (72h) = 200 mg/l (Poecilia Reticulata)

Toxicity in respect of water fleas

CL₅₀ (48h) = 490 mg/l (Daphnia magna)

LE₅₀ = 200/1000 mg/l (plankton)

12.2 - Persistence and degradability

Potassium nitrate is a substance in the form of ionogene and also of life cycles of natural materials like those of the azoth et can easily be transformed in other elements of this life cycle. See, nevertheless section 12.5.

12.3 - Bioaccumulation potential

Potential bioaccumulation of this mixture is very low because those of the raw material are very low.

12.4 - Results of the evaluation of PBT properties (persistent, bio-accumulable et toxic)

Nowadays, no evaluation has been done on the mixture.

12.5 - Other harmful effect

Too much potassium nitrate can involve eutrophication of water and over fertilisation of the grounds. The careful manipulation of this substance is thus imperative. With careful manipulation of this product and use in compliance with the prescriptions, the harmful effects are impossible.

13 - DISPOSAL CONSIDERATION

Waste and residues

The product should not be given up, it must be collected to be evacuated according to the recommendations prescribed in section 6, then, stored with monitoring according to recommendation prescribed in section 7, or destroyed with heavy quantities of water in an area affected to destruction. Never try to destroy black powder by ignition. Do not mix with other incompatible residues (§ 10).

In any case, comply with the rules in force. In the event of complications, it is advised to take contact with Titanobel.

Soiled packaging

Depending on its state, it can be used again for the same product or for a different product after an appropriate cleaning, or, destroyed according to conditions described here after: the soiled packaging is carefully examined to make sure that it is empty then, either it will be burned, nowadays' best technique (see BREF-OFC) on an area planned for that purpose within respecting the safety instructions of the establishment, or it can be returned to Titanobel following conditions defined between both parts to be handled within the sectors of elimination.

14 - TRANSPORT INFORMATION

Transport classification for transport in agreed packaging

Official designation for transport :

BLACK POWDER IN GRAIN OR IN FLOUR FORM

Road way:	Maritime way:	Aerial way:
- ADR-RID : ONU N° 0027 1.1 D 4° Packaging method: P113	- IMDG :ONU N°0027 1.1 D Packaging method: P113	- OACI : forbidden

Approved packaging (first method):

- Internal packaging:: polyethylene bag 5 H 4
- External packaging: cardboard box 4 G
- Maxi net mass: 25 kg
- packaging instruction: P 113
- Special arrangement: PP 50

Approved packaging (second method):

- Internal packaging, unitary countenance: small plastic can 1 H 2
- Capacity: 500 gr maxi
- External packaging gathering: cardboard box 4 G
- Maxi net mass : 50 small cans i.e. 25 kg
- Packaging instruction: P 113
- Special arrangement: PP 50

15 - LEGISLATION INFORMATION

Symbol	E	Explosive
<u>Codes for the hazard statement</u>	H201	Explosive, risk of mass explosion
<u>Precautionary statements</u>	P210 P250 P280 P370+P380 P372 P373 P401 P501	Keep away from heat/sparks/flames/warm surfaces. No smoking Avoid abrasions/shocks/friction Wear protective gloves, eye protection/face protection In case of fire, evacuate the area Risk of explosion in case of fire In case or fire and/ or of explosion, do not breathe fumes This material and its container must be disposed of in a safe way 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, National regulations for approval must be respected.

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 not 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**