

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifier

Product name: FLUOPA (ferromagnetic powder)

Internal Code: 201002-1 /5/10

1.2 Relevant identified and discouraged uses

Recommendations for use: According to the product data sheet. Not recommended uses: Those not specified.

1.3 Safety Data Sheet supplier information

ARO S.A.

Belgrano Avenue 369, (C1029AAD) Autonomous City of Buenos Aires - Argentina.

T: +54 11 4331 4503 - F: +54 11 4331 3572

1.4 Emergency telephone

Emergency number (24 hours): +54 11 4331 4503

SECTION 2 - HAZARD IDENTIFICATION

2.1 Classification of the substance or mixture

CLASSIFICATION according to the Globally Harmonized System

Danger to the aquatic environment - acute hazard (Category 3)

2.2 Label elements

Pictogram: NONE

Word of caution: NONE

Indications of danger:

H402 - Harmful to aquatic organisms.

Cautionary advice:

P273 - Do not release into the environment.

P501 - Dispose of contents/container in accordance with national/international regulations.

2.3 Other hazards

None

SECTION 3 - COMPOSITION / INFORMATION ON COMPONENTS

3.1 Substance

Not applicable.

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Replaces:			-
Prepared by:	CIQUIME	Approved by:	ARO S.A.

3.2 Mixing

HAZARDOUS INGREDIENTS	CAS No.	% WEIGHT	CLASSIFICATION
Iron (III) oxide	1309-37-1	40 - 60	Aquatic Acute 2
Triiron tetroxide	1317-61-9	20 - 30	Self Heat. 1
Iron hydroxide oxide yellow	1274-00-1	20 - 30	Not classified

SECTION 4 - FIRST AID

4.1 Description of first aid

General measurements:	Avoid exposure to the product by taking appropriate protective measures. Consult a doctor, taking the safety data sheet with you.
Inhalation:	Move the victim and provide clean air. Keep the victim calm. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call physician.
Skin contact:	Wash immediately after contact with plenty of water for at least 20 minutes. Remove contaminated clothing and wash before reuse.
Eye contact:	Immediately flush the eyes with water for at least 20 minutes, and hold the eyelids open to ensure that the entire eye and eyelid tissues are rinsed. Rinsing the eyes within seconds is essential for maximum efficacy. If you have contact lenses, remove them after the first 5 minutes and then continue rinsing your eyes. Consult a physician.
Ingestion:	DO NOT INDUCE VOMITING. Rinse mouth, and give water to drink. Never give anything by mouth to an unconscious person. Call a physician. If vomiting occurs spontaneously, place victim on his or her side to reduce the risk of aspiration.

4.2 Main symptoms and effects, both acute and delayed

Inhalation: may cause irritation of the respiratory system.
 Skin contact: may cause irritation and dermatitis.

Eye contact: may cause irritation. Ingestion: nausea, vomiting.

4.3 Indication of any medical care and special treatment to be given immediately.

Note to physician: Symptomatic treatment. For further information, consult a Poison Center.

SECTION 5 - FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: Use dry chemical powder, foam, sand or CO₂. Use product commensurate with surrounding materials. DO NOT use direct water jets.

5.2 Specific hazards arising from the substance or mixture

Fire hazard: Product and its packaging burning in enclosed spaces for long periods may produce amounts of carbon monoxide that reach the lower explosive limit (carbon monoxide LEL = 12.5% in air).

Under certain conditions, any dust in the air can be an explosion hazard.

5.3 Recommendations for firefighters

5.3.1 Fire extinguishing instructions:

Spray packages with water to prevent ignition if they have been exposed to excessive heat or fire. Remove the packages if they have not yet been reached by flames, and you can do so without risk.

Cool the packings with water until well after the fire has been extinguished, stirring the remains until the embers are eliminated.

Prevent water used for fire control or dilution from entering watercourses, drains or springs.

5.3.2 Protection during firefighting:

Wear self-contained breathing apparatus. Structural firefighters' protective clothing provides limited protection in fire situations ONLY; may not be effective in spill situations.

5.3.3 Hazardous decomposition products in case of fire:

In case of fire, it may release irritating and/or toxic fumes and gases, such as carbon monoxide and other substances resulting from incomplete combustion.

SECTION 6 - MEASURES IN CASE OF ACCIDENTAL SPILLAGE

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency services personnel Avoid sources of ignition. Evacuate personnel to a ventilated area.

6.1.2 For emergency personnel

Avoid ignition sources. Evacuate personnel to a ventilated area. Wear self-contained breathing apparatus and eye and skin protection. Wear impervious protective gloves. Ventilate immediately, avoiding the generation of dust clouds. Do not allow reuse of spilled product.

Observe the information and recommendations in sections 5 and 7. Use the protective equipment recommended in section 8.

6.2 Environmental precautions

Contain the solid and cover it to avoid its dispersion to the environment. Prevent dust from reaching watercourses.

6.3 Methods and material for containment and cleaning up

Collect the product with a shovel and place it in an appropriate container. Sweep or vacuum avoiding dust dispersion.

It may be necessary to moisten it slightly. Thoroughly clean or wash contaminated area. Dispose of water and collected residue in marked containers for disposal as chemical waste.

6.4 Reference to other sections

See Section 8 - Exposure Controls and Personal Protection, and Section 13 - Waste Considerations.

SECTION 7 - HANDLING AND STORAGE

7.1 Precautions for safe handling

Do not eat, drink or smoke during handling. Avoid contact with eyes, skin and clothing. Wash arms, hands and nails after handling this product. The use of gloves is recommended. Provide access to safety showers and emergency eyewash.

7.2 Conditions for safe storage, including possible incompatibilities

Storage conditions: Store in a clean, dry and well ventilated area. Protect from sunlight. Keep containers closed.

Packaging materials: as supplied by the manufacturer.

Incompatible products: Strong oxidizing agents, acids and bases.

7.3 Specific end uses

According to product data sheet.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1 Control parameters

CMP (Res. MTESS 295/03):	5 mg/m ³ , Iron oxide
CMP-CPT (Res. MTESS 295/03):	CMP- N/A
C (Res. MTESS 295/03):	TLV- N/A
TWA (ACGIH):	TLV-STEL (ACGIH) N/A
:	N/A
PEL-TWA (OSHA 29 CFR 1910.1000):	10 mg/m ³ , Iron oxide
IDLH (NIOSH) :	2500 mg/m ³ (as Fe)
REL-TWA:	5 mg/m ³ , Iron oxide
PNEC (water):	N/A
PNEC (sea):	N/A
PNEC-STP:	N/A

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Keep the workplace ventilated. Normal ventilation for normal manufacturing operations is generally adequate. Local exhaust hoods should be used during operations that produce or release large quantities of product. In low or confined areas, mechanical ventilation should be provided. Showers and eyewash stations should be provided.

8.2.2 Personal protective equipment

Eye and face protection: Chemical splash-proof safety goggles (complying with EN 166) should be worn.

Skin protection: Impermeable protective gloves of PVC, nitrile or butyl (complying with IRAM 3607-3608-3609 and EN 374), work clothes and chemical resistant safety shoes should be worn when handling this product.

Respiratory protection: Where necessary, use dust respiratory protection (P1). Particular attention should be paid to oxygen levels in the air. If large releases occur, use self-contained breathing apparatus (SCBA).

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

9.1 Basic physical and chemical properties information

Appearance:	Yellowish brown powder.
Odor:	toilet.
Olfactory threshold:	N/A
pH:	N/A
Melting/freezing point:	N/A
Boiling point / boiling range:	N/A
Evaporation rate:	N/A
Flash point:	N/A
Flammability limits:	N/A
Vapor pressure (20°C):	N/A
Vapor density (air=1):	N/A
Density (20°C):	N/A
Solubility (20°C):	Dispersible in water.
Partition coefficient (logKo/w):	N/A
Auto-ignition temperature:	N/A
Viscosity (cSt at 20°C):	N/A
Henry's constant (20°C):	N/A
Log Koc:	N/A
Explosive properties:	Non-explosive. According to column 2 of Annex VII of REACH, this study is not necessary because: there are no chemical groups associated with explosive properties in the molecule.

Oxidizing properties: According to column 2 of Annex VII of REACH, this study is not necessary because: the substance, due to its chemical structure, cannot react exothermically with combustible materials.

9.2 Additional information

Other properties: None.

SECTION 10 - STABILITY AND REACTIVITY

10.1 Reactivity

The material will not react dangerously.

10.2 Chemical stability

Does not cause hazardous reactions if handled and stored according to regulations.
When stored at normal ambient temperatures (-40°C to +40°C), the product is stable.

10.3 Possibility of hazardous reactions

The material will not develop dangerous polymerization.

10.4 Conditions to avoid

Avoid high temperatures.

10.5 Incompatible materials

Strong oxidizing agents, acids and bases.

10.6 Hazardous decomposition products

May release irritating and toxic vapors when heated. In case of fire, see Section 5.

SECTION 11 - TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity:	oral ETA-DL50 (rat, calc.): > 2000 mg/kg ETA-DL50 der (rabbit, calc.): > 2000 mg/kg ETA-CL50 inh. (rat, 4hs., calc.): > 5 mg/l
Skin irritation or corrosion:	Dermal irritation (rabbit, calc.): non-irritating
Serious eye damage or irritation:	Eye irritation (rabbit, calc.): non-irritant.
Respiratory or skin sensitization:	Skin sensitization (guinea pigs, calc.): not sensitizing. Respiratory sensitization (guinea pig, calc.): not sensitizing

Mutagenicity, Carcinogenicity and toxicity for reproduction:

No information is available on any component of this product, at levels greater than or equal to 0.1%, as a probable, possible or confirmed IARC (International Agency for Research on Carcinogens) human carcinogen.

Acute and delayed effects:

Routes of exposure: Inhalation, dermal and eye contact.

Inhalation: may cause irritation of the respiratory system.

Skin contact: may cause irritation and dermatitis.

Eye contact: may cause irritation.

Ingestion: nausea, vomiting.

SECTION 12 - ECOLOGICAL INFORMATION

12.1 Toxicity

ETA-CE50 (*O. mykiss*, calc., 48 h): > 100 mg/l

ETA-CE50 (*D. magna*, calc., 48 h): 21.5 mg/l

ETA-CE50 (*P. subcapitata*, calc., 48 h): > 100 mg/l

ETA-CE50 (*T. pyriformis*, calc., 48 h): > 100 mg/l

ATE-CSEO (*D. rerio*, calc., 14 d): > 1 mg/l

ATE-CSEO (*D. magna*, calc., 14 d): > 1 mg/l

12.2 Persistence and degradability

BIODEGRADABILITY (estimated): The product is inorganic.

12.3 Bioaccumulation potential

Log K_{ow} : N/A

BIOACCUMULATION IN FISH - BCF (OECD 305): N/D

12.4 Mobility in the soil

LogKoc: N/A

HENRY'S CONSTANT (20°C): N/A

12.5 PBT and vPvBm assessment results

This substance/mixture does not meet the PBT criteria of Annex XIII of the REACH regulation.

This substance/mixture does not meet the vPvB criteria of Annex XIII of the REACH regulation.

12.6 Other adverse effects

AOX and metal content: Free of organic halogens and metals.

SECTION 13 - DISPOSAL CONSIDERATIONS

Both leftover product and empty containers should be disposed of in accordance with current legislation on Environmental Protection and in particular on Hazardous Waste (National Law No. 24.051 and its regulations). The waste must be classified and disposed of by an authorized company. Disposal procedure: sanitary landfill.

SECTION 14 - TRANSPORTATION INFORMATION

14.1 LAND TRANSPORTATION

Proper Shipping Name:	NON-DANGEROUS GOODS FOR TRANSPORT
UN/ID NO:	NON-DANGEROUS GOODS FOR TRANSPORT
Hazard Class:	NON-DANGEROUS GOODS FOR TRANSPORT
Packaging Group:	NON-DANGEROUS GOODS FOR TRANSPORT
Risk Code:	NON-DANGEROUS GOODS FOR TRANSPORT

Limited and excepted quantity: NON-DANGEROUS GOODS FOR TRANSPORT

14.2 AIR TRANSPORT (ICAO/IATA)

Proper Shipping Name:	NON-DANGEROUS GOODS FOR TRANSPORT
UN/ID N°:	NON DANGEROUS GOODS FOR TRANSPORTATION
Danger Class:	GOODS NOT DANGEROUS FOR TRANSPORT
Packing Group:	NON HAZARDOUS GOODS FOR TRANSPORTATION
Instructions for Passenger and Cargo Aircraft:	NON HAZARDOUS GOODS FOR TRANSPORTATION
Instructions for Cargo Aircraft:	NON HAZARDOUS GOODS FOR TRANSPORTATION
CRE:	NON-DANGEROUS GOODS FOR TRANSPORT
Special Provisions:	NON HAZARDOUS GOODS FOR TRANSPORTATION

14.3 MARITIME TRANSPORT (IMO)

Transportation in packaging according to IMDG Code

Proper Shipping Name:	NON-DANGEROUS GOODS FOR TRANSPORT
UN/ID NO:	NON-DANGEROUS GOODS FOR TRANSPORT
Hazard Class:	NON-DANGEROUS GOODS FOR TRANSPORT
Packaging Group:	NON-DANGEROUS GOODS FOR TRANSPORT
EMS:	NON-DANGEROUS GOODS FOR TRANSPORT
Stowage and Segregation:	NON-DANGEROUS GOODS FOR TRANSPORT
Marine Pollutant:	NO
Name for transport documentation:	NOT CLASSIFIED AS A DANGEROUS GOODS

SECTION 15 - REGULATION OF USE

15.1 Safety, health and environmental regulations and legislation specific to the substance or mixture

Substance not hazardous to the ozone layer (1005/2009/EC).
Volatile organic compound (VOC) contents (2004/42/EC): N/D

15.2 Chemical safety assessment

The supplier has not conducted a chemical safety assessment for this substance/mixture.

SECTION 16 - OTHER INFORMATION

16.1 Abbreviations and acronyms

N/A: not applicable.

N/A: no information available.

CAS: Chemical Abstracts Service IARC: International Agency for Research on Cancer

ACGIH: American Conference of Governmental Industrial Hygienists.

TLV: Threshold Limit Value

TWA: Time Weighted Average

STEL: Short Term Exposure Limit

REL: Recommended Exposure Limit.

PEL: Permissible Exposure Limit. INSHT: National Institute for Safety and Hygiene at Work.
ATE: acute toxicity estimation.
LD50: Lethal Dose Limit.

LC50: Lethal Concentration.
EC50: Effective Concentration.
IC50: Inhibitory Concentration.
|: Changes with respect to the previous revision.

16.2 Main bibliographic references and data sources

Safety Data Sheet in accordance with Resolution 801/2015 of the Superintendence of Labor Risks, MTESS, and IRAM Standard 41400: 2013 - Safety Data Sheet Format according to GHS.

Resolution 295/2003 Ministry of Labor, Employment and Social Security, Argentine Republic - Environmental exposure controls.

Resolution 310/2003 Superintendence of Labor Risks, Ministry of Labor, Employment and Social Security, Argentine Republic - Carcinogens.

National Law No. 24.051 and its regulations, Argentine Republic - Hazardous Waste Law.

Resolution 195/97 Secretariat of Public Works and Transportation, Argentine Republic - General Regulations for the Transportation of Dangerous Goods by Road.

Regulation (EC) 1272/2008 on Classification, Labeling and Packaging of Chemical Substances and their Mixtures, as amended.

Regulation (EC) 1907/2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), as amended.

Dir. 91/689/EEC on hazardous waste and Dir. 91/156/EEC on waste management.

European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR 2015).

Regulations concerning the International Carriage of Dangerous Goods by Rail (RID 2015).

International Maritime Dangerous Goods Code (IMDG 34 ed.), IMO, Resolution MSC 90/28/Add.2.

IBC/MARPOL Code, IMO, Resolution MEPC 64/23/Add.1.

International Air Transport Association Regulations (IATA 56 ed., 2015) relating to the transport of dangerous goods by air.

Globally Harmonized System of Classification and Labeling of Chemicals, fifth revised edition, 2015 (GHS 2015).

International Agency for Research on Cancer (IARC), classification of carcinogens. Revision: 23/03/2015.

16.3 Classification and procedure used to determine the classification of the mixture

Procedures according to GHS/GHS and Resolution 801/2015 of the Superintendence of Labor Risks, MTESS.

The classification has been made on the basis of chemical analogues and product information.

SECTION 2: classification by analogy with other products, and on the basis of product data.

SECTION 9: Product data.

Flammability: according to test data.

SECTION 11 and 12: analogy with other products.

Acute toxicity: calculation method for estimating acute toxicity.

16.4 Exclusion of liability

This information relates only to the product mentioned above and is not to be valid for any other product(s) or process. This safety data sheet provides health and safety information. The information is, to the best of our knowledge, correct and complete. It is provided in good faith, but without warranty. The product should be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For all other uses, exposure

should be assessed so that proper handling practices and training programs can be implemented to ensure safe operations in the workplace.

It remains the responsibility of the user to ensure that this information is appropriate and complete for the particular use of this product.

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Prepared by: CIQUIME

Approved by: ARO S.A.