









**Safety Data Sheet dated 28/8/2017, version 3**

**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

- 1.1. Product identifier  
Mixture identification:  
Trade name: MULTIFUNZIONE 200 GRAMMI
- 1.2. Relevant identified uses of the substance or mixture and uses advised against  
Identified use:  
Chlorinator agent stabilized with flocculant and antialgae.  
Uses advised against:  
Any other use different from the identified uses.
- 1.3. Details of the supplier of the safety data sheet  
Company:  
BARCHEMICALS SRL  
VIA S.ALLENDE 14  
CASTELNUOVO RANGONE (MO)  
ITALY  
PHONE. +39 059/536502  
FAX. +39 059/536742  
www.barchemicals.it  
Competent person responsible for the safety data sheet:  
barani.corrado@barchemicals.it
- 1.4. Emergency telephone number  
Barani Dr.Corrado - MOBILE PHONE. +39 335/6109383

**SECTION 2: Hazards identification**

- 2.1. Classification of the substance or mixture  
EC regulation criteria n°1272/2008 (CLP)
-  Danger, Ox. Sol. 2, May intensify fire oxidiser..
  -  Warning, Acute Tox. 4, Harmful if swallowed.
  -  Warning, Eye Irrit. 2, Causes serious eye irritation.
  -  Warning, STOT SE 3, May cause respiratory irritation.
  -  Warning, Aquatic Acute 1, Very toxic to aquatic life.
  -  Warning, Aquatic Chronic 1, Very toxic to aquatic life with long lasting effects.
- EUH031 Contact with acids liberates toxic gas.

Adverse physicochemical, human health and environmental effects:  
No other hazards

- 2.2. Label elements  
Hazard pictograms:



Danger

**Safety Data Sheet**  
**MULTIFUNZIONE 200 GRAMMI**
**Hazard statements:**

H272 May intensify fire; oxidiser.  
H302 Harmful if swallowed.  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.  
H410 Very toxic to aquatic life with long lasting effects.

**Precautionary statements:**

P102 Keep out of reach of children.  
P210 Keep away from heat - No smoking.  
P260 Do not breathe dust or mist.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**Special Provisions:**

EUH031 Contact with acids liberates toxic gas.

**Contains**

symclosene; trichloroisocyanuric acid; trichloro-1,3,5-triazinetriion  
copper sulphate  
Aluminum sulphate

**Special provisions according to Annex XVII of REACH and subsequent amendments:**

None

**2.3. Other hazards**

vPvB Substances: None - PBT Substances: None

**Other Hazards:**














No other hazards

**SECTION 3: Composition/information on ingredients**
**3.1. Substances**

N.A.

**3.2. Mixtures**

Hazardous components within the meaning of the CLP regulation and related classification:

Qty	Name	Ident. Number	Classification
>= 90%	symclosene; trichloroisocyanuric acid; trichloro-1,3,5- triazinetriion	Index 613-031-00-5 number: CAS: 87-90-1 EC: 201-782-8	 2.14/2 Ox. Sol. 2 H272  3.3/2 Eye Irrit. 2 H319  3.8/3 STOT SE 3 H335  4.1/A1 Aquatic Acute 1 H400  4.1/C1 Aquatic Chronic 1 H410  3.1/4/Oral Acute Tox. 4 H302
>= 5% - < 7%	copper sulphate	Index 029-004-00-0 number: CAS: 7758-98-7 EC: 231-847-6 REACH No.: 01- 2119520566- 40	 3.1/4/Oral Acute Tox. 4 H302  3.2/2 Skin Irrit. 2 H315  3.3/2 Eye Irrit. 2 H319  4.1/A1 Aquatic Acute 1 H400  4.1/C1 Aquatic Chronic 1 H410
>= 5% - < 7%	Aluminum sulphate	CAS: 10043-01-3 EC: 233-135-0 REACH No.: 01- 2119531538-	 2.16/1 Met. Corr. 1 H290  3.3/1 Eye Dam. 1 H318

**Safety Data Sheet**  
**MULTIFUNZIONE 200 GRAMMI**

		36	
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#### **SECTION 4: First aid measures**

##### 4.1. Description of first aid measures

In case of skin contact:

After contact with skin, wash immediately with soap and plenty of water.

Remove contaminated clothing immediately and dispose off safely.

**OBTAIN IMMEDIATE MEDICAL ATTENTION.**

In case of eyes contact:

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.

Protect uninjured eye.

In case of Ingestion:

Rinse well your mouth

Do not under any circumstances induce vomiting. **OBTAIN A MEDICAL EXAMINATION IMMEDIATELY.**

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.

In case of breathing difficult, bring the injured person into the open air and store it in a comfortable position for breathing. Consult a physician.

If breathing is irregular or stopped, administer artificial respiration.

##### 4.2. Most important symptoms and effects, both acute and delayed

None

##### 4.3. Indication of any immediate medical attention and special treatment needed

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

Treatment:

In case of contact with eyes, rinse immediately for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

After contact with skin, wash immediately with plenty of soap and water.

If inhaled, move the victim to fresh air and keep warm and at rest.

If swallowed, rinse mouth and drink water. Consult a doctor as soon as possible.

#### **SECTION 5: Firefighting measures**

##### 5.1. Extinguishing media

Suitable extinguishing media:

Carbon dioxide (CO<sub>2</sub>).

Water spray, heavy alcohol foam, dry chemical or carbon dioxide.

Extinguishing media which must not be used for safety reasons:

Full jet water.

##### 5.2. Special hazards arising from the substance or mixture

Do not inhale explosion and combustion gases.

Burning produces heavy smoke.

Combustion of the product produces chlorine gas.

In case of fire or overheating, a pressure increase will occur with the possibility of breaking the container. This material is highly toxic to aquatic life with long-term effects. Contaminated water with this material must be contained and must be prevented from accessing waterways, sewers or drains.

##### 5.3. Advice for firefighters

Move undamaged containers from immediate hazard area if it can be done safely.

Immediately isolate the area by removing all persons from the area of the accident in the event of a fire. No action shall be taken involving any personal risk or without proper training.

Firefighters must wear protective equipment and self-contained breathing apparatus (SCBA) with a full-face mask on the working face at positive pressure. Fire extinguishers (including

**Safety Data Sheet**  
**MULTIFUNZIONE 200 GRAMMI**

helmets, protective boots and gloves) conforming to European Standard EN469 will provide basic protection for chemical accidents.

### **SECTION 6: Accidental release measures**

- 6.1. Personal precautions, protective equipment and emergency procedures  
Evacuate the surrounding areas.  
Eliminate all free flames and possible sources of ignition.  
Not smoking.  
Provide adequate ventilation.  
Prevent entry of foreign and unprotected personnel.  
Wear personal protection equipment.
- 6.2. Environmental precautions  
Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.
- 6.3. Methods and material for containment and cleaning up  
Stop the escape if there is no risk. Move the containers from the spill area. Get closer to the source of overwhelming emission. Prevent spills in sewage systems, waterways, basements or restricted areas. Wash and convey the spilled amounts in a waste treatment plant.  
Collect with the shovel and place in suitable containers for disposal. Avoid dust formation.  
After cleaning each trace with water. Eliminate in compliance with the applicable standard.
- 6.4. Reference to other sections  
See also section 8 and 13

### **SECTION 7: Handling and storage**

- 7.1. Precautions for safe handling  
Avoid contact with skin and eyes, inhalation of vapours and mists.  
Use localized ventilation system.  
Don't use empty container before they have been cleaned.  
Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.  
Contaminated clothing should be changed before entering eating areas.  
Do not eat or drink while working.  
See also section 8 for recommended protective equipment.
- 7.2. Conditions for safe storage, including any incompatibilities  
Keep container tightly closed in a cool, dry place.  
Do not eat, drink or smoke at the workplace. Foods and beverages should be consumed only in areas specifically identified after removing contaminated clothing and protective equipment and after washing your hands. Wash in any case hands after handling the substance / mixture.  
Store at below 20 °C. Keep away from unguarded flame and heat sources. Avoid direct exposure to sunlight.  
Keep away from unguarded flame, sparks, and heat sources. Avoid direct exposure to sunlight.  
Keep away from food, drink and feed.  
Incompatible materials:  
Keep away from acids.  
Keep away from combustible materials.  
Instructions as regards storage premises:  
Cool and adequately ventilated.
- 7.3. Specific end use(s)  
See section 1.2.

### **SECTION 8: Exposure controls/personal protection**

- 8.1. Control parameters  
copper sulphate - CAS: 7758-98-7  
ACGIH - TWA(8h): 1 mg/m<sup>3</sup>  
Aluminum sulphate - CAS: 10043-01-3

**Safety Data Sheet**  
**MULTIFUNZIONE 200 GRAMMI**

ACGIH - TWA(8h): 2 mg/m<sup>3</sup>

**DNEL Exposure Limit Values**

Aluminum sulphate - CAS: 10043-01-3

Worker Professional: 10 03 - Consumer: 5 03 - Exposure: Human Inhalation - Frequency: Short Term, systemic effects

Worker Professional: 3 03 - Exposure: Human Oral - Frequency: Long Term, systemic effects

Worker Professional: 3 03 - Exposure: Human Inhalation - Frequency: Long Term, local effects

Worker Professional: 10 03 - Exposure: Human Inhalation - Frequency: Short Term, local effects

Worker Professional: 2.72 mg/kg - Exposure: Human Dermal - Frequency: Long Term, systemic effects

Worker Professional: 46.7 mg/kg - Exposure: Human Dermal - Frequency: Short Term, systemic effects

Worker Professional: 9.2 04 - Exposure: Human Dermal - Frequency: Long Term, local effects

Worker Professional: 9.2 04 - Exposure: Human Dermal - Frequency: Short Term, local effects

Consumer: 1.5 03 - Exposure: Human Inhalation - Frequency: Long Term, systemic effects

Consumer: 5 03 - Exposure: Human Inhalation - Frequency: Short Term, systemic effects

**PNEC Exposure Limit Values**

copper sulphate - CAS: 7758-98-7

Target: Fresh Water - Value: 0.0078 mg/l

Target: Marine water - Value: 0.0052 mg/l

Target: Microorganisms in sewage treatments - Value: 0.23 mg/l

Target: Freshwater sediments - Value: 87 mg/kg

Target: Soil (agricultural) - Value: 65 mg/kg

Aluminum sulphate - CAS: 10043-01-3

Target: Fresh Water - Value: 4.50 mg/l

Target: Marine water - Value: 64.0 mg/l

Target: Microorganisms in sewage treatments - Value: 60.2 mg/l

Target: Freshwater sediments - Value: 10 mg/l

Target: Marine water sediments - Value: 31.4 mg/l

Target: Soil (agricultural) - Value: 58 mg/kg

**8.2. Exposure controls**

**Eye/face protection:**

Eye glasses with side protection. EN166

**Protection for skin:**

Clothing resistant to corrosive products CLASS I, EN 340

**Protection for hands:**

Gloves resistant to chemicals. EN 374

**Respiratory protection:**

Full facial mask with chlorine filter (EN14387).

Where ventilation is insufficient or exposure is prolonged use a protective breathing equipment, es. CEN / FFP-2 or CEN / FFP-3.

**Thermal Hazards:**

Not applicable (the product is handled at room temperature)

**Environmental exposure controls:**

Do not allow the product to be absorbed from the soil or from entering waterways or sewers.

Do not let product enter drains. Discharge into the environment must be avoided.

The product is toxic to the aquatic environment.

**Appropriate engineering controls:**

Ensure adequate ventilation. Comply with the maximum concentration values in the workplace.

Safety Data Sheet  
**MULTIFUNZIONE 200 GRAMMI**

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Properties	Value	Method:	Notes:
Appearance and colour:	White pads with blue dots	--	--
Odour:	Pungente	--	--
Odour threshold:	N.A.	--	--
pH:	3	--	10 g/l at 10 °C
Melting point / freezing point:	225-240°C	--	--
Initial boiling point and boiling range:	N.A.	--	--
Flash point:	Not Available	--	--
Evaporation rate:	N.A.	--	--
Solid/gas flammability:	N.A.	--	--
Upper/lower flammability or explosive limits:	N.A.	--	--
Vapour pressure:	N.A.	--	--
Vapour density:	N.A.	--	--
Relative density:	Not Available	--	--
Solubility in water:	12 g/l	--	at 20 °C
Solubility in oil:	N.A.	--	--
Partition coefficient (n-octanol/water):	N.A.	--	--
Auto-ignition temperature:	N.A.	--	--
Decomposition temperature:	230 °C	--	--
Viscosity:	N.A.	--	--
Explosive properties:	N.A.	--	--
Oxidizing properties:	N.A.	--	--

### 9.2. Other information

Properties	Value	Method:	Notes:
Miscibility:	N.A.	--	--
Fat Solubility:	N.A.	--	--
Conductivity:	N.A.	--	--
Substance Groups relevant properties	N.A.	--	--

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

oxidising substance: it enhances combustion of other substances

### 10.2. Chemical stability

Stable under recommended storage and handling. Please refer to section 7 of the MSDS.

### 10.3. Possibility of hazardous reactions

Avoid heat, flames and other sources of ignition.

Acids.

### 10.4. Conditions to avoid

Do not mix with acids. It can be produced toxic gases (chlorine).

Humidity.

Keep away from heat sources.

**Safety Data Sheet**  
**MULTIFUNZIONE 200 GRAMMI**

- 10.5. Incompatible materials  
Products containing nitrogen (ammonia, urea etc.)  
Concentrated acids.  
organic substances.
- 10.6. Hazardous decomposition products  
Chlorine.  
Sulfur oxides.

**SECTION 11: Toxicological information**

11.1. Information on toxicological effects

Toxicological information of the product:

N.A.

Toxicological information of the main substances found in the product:

symclosene; trichloroisocyanuric acid; trichloro-1,3,5-triazinetriol - CAS: 87-90-1

a) acute toxicity:

Test: LD50 - Route: Oral = 532 mg/kg

copper sulphate - CAS: 7758-98-7

a) acute toxicity:

Test: LD50 - Route: Oral - Species: Rat = 300 mg/kg - Source: FRESNO, THOMSON PUBLICATIONS GESTIS - Notes: OECD GUIDELINE 401 (ACUTE ORAL TOXICITY)

Test: LD50 - Route: Skin - Species: Rat > 2000 mg/kg - Source: STUDY REPORT 1993 (ECHA) - Notes: OECD GUIDELINE 402 (ACUTE DERMAL TOXICITY)

b) skin corrosion/irritation:

Test: Skin Irritant Yes - Source: GESTIS

c) serious eye damage/irritation:

Test: Eye Irritant Yes - Source: GESTIS

d) respiratory or skin sensitisation:

Test: Skin Sensitization - Species: .porc No - Source: STUDY REPORT 1994 (ECHA) - Notes: OECD GUIDELINE 406 (SKIN SENSITISATION)

e) germ cell mutagenicity:

Test: Mutagenesis No - Source: STUDY REPORT 1994 (ECHA) - Notes: BACTERIAL REVERSE MUTATION ASSAY OECD GUIDELINE 471

f) carcinogenicity:

Test: Carcinogenicity No - Source: CARLTON AND PRICE 1973 (ECHA)

g) reproductive toxicity:

Test: Reproductive Toxicity No - Source: STUDY REPORT 2005 (ECHA) - Notes: EPA OPPTS 870.3800 (REPRODUCTION AND FERTILITY EFFECTS)

Aluminum sulphate - CAS: 10043-01-3

a) acute toxicity:

Test: LD50 - Route: Oral - Species: Rat = 6207 mg/kg - Source: STUDY REPORT 1996 (ECHA) - Notes: ALUMINIUM IN THE URINE, FAECES, AND TISSUES WAS ESTIMATED BY NIKITINA'S (1956)

Test: LD50 - Route: Skin - Species: Rabbit > 5000 mg/kg - Source: STUDY REPORT 1973 (ECHA) - Notes: OECD GUIDELINE 402 (ACUTE DERMAL TOXICITY)

b) skin corrosion/irritation:

Test: Skin Irritant - Species: Rabbit No - Source: STUDY REPORT 1973 (ECHA) - Notes: OECD GUIDELINE 404 (ACUTE DERMAL IRRITATION / CORROSION)

c) serious eye damage/irritation:

Test: Eye Corrosive - Species: Rabbit Yes - Source: STUDY REPORT 1994 (ECHA) - Notes: OECD GUIDELINE 405 (ACUTE EYE IRRITATION / CORROSION)

d) respiratory or skin sensitisation:

Test: Skin Sensitization No - Source: STUDY REPORT 2006 (ECHA) - Notes: SKIN PRICK TEST

e) germ cell mutagenicity:

Test: Mutagenesis No - Source: STUDY REPORT 1991 (ECHA) - Notes: EPA OTS 798.5550

**Safety Data Sheet**  
**MULTIFUNZIONE 200 GRAMMI**

- f) carcinogenicity:  
Test: Carcinogenicity No - Source: STUDY REPORT 1975 (ECHA) - Notes: EPA OPP 83-5 (COMBINED CHRONIC TOXICITY / CARCINOGENICITY)
- g) reproductive toxicity:  
Test: Reproductive Toxicity No - Source: STUDY REPORT 1994 (ECHA) - Notes: EPA OPP 83-6 (DEVELOPMENTAL NEUROTOXICITY STUDY)
- symclosene; trichloroisocyanuric acid; trichloro-1,3,5-triazinetriol - CAS: 87-90-1  
LD50 (RAT) ORAL: 406 MG/KG  
LD50 (RABBIT) SKIN: 20000 MG/KG

If not differently specified, the information required in Regulation (EU)2015/830 listed below must be considered as N.A.:

- a) acute toxicity;  
b) skin corrosion/irritation;  
c) serious eye damage/irritation;  
d) respiratory or skin sensitisation;  
e) germ cell mutagenicity;  
f) carcinogenicity;  
g) reproductive toxicity;  
h) STOT-single exposure;  
i) STOT-repeated exposure;  
j) aspiration hazard.

## **SECTION 12: Ecological information**

### 12.1. Toxicity

No information is available on the mixture as a whole. This is the information on ecotoxicological effects of the individual components.

symclosene; trichloroisocyanuric acid; trichloro-1,3,5-triazinetriol - CAS: 87-90-1

a) Aquatic acute toxicity:

Endpoint: LC50 - Species: Fish = 0.08 mg/l - Duration h: 96

Endpoint: EC50 - Species: Daphnia = 0.17 mg/l - Duration h: 48

copper sulphate - CAS: 7758-98-7

a) Aquatic acute toxicity:

Endpoint: LC50 - Species: Fish = 0.032 mg/l - Duration h: 96 - Notes: ECHA

Endpoint: EC50 - Species: Daphnia = 0.18 mg/l - Duration h: 48 - Notes: ECHA

Endpoint: EC50 - Species: Algae = 2.5 mg/l - Duration h: 72 - Notes: ECHA

Aluminum sulphate - CAS: 10043-01-3

a) Aquatic acute toxicity:

Endpoint: LC50 - Species: Fish = 235 mg/l - Duration h: 96 - Notes: ECHA

Endpoint: EC50 - Species: Daphnia = 160 mg/l - Duration h: 48 - Notes: ECHA

### 12.2. Persistence and degradability

N.A.

### 12.3. Bioaccumulative potential

N.A.

### 12.4. Mobility in soil

N.A.

### 12.5. Results of PBT and vPvB assessment

vPvB Substances: None - PBT Substances: None

### 12.6. Other adverse effects

None

## **SECTION 13: Disposal considerations**

### 13.1. Waste treatment methods

Recover, if possible. Send to authorised disposal plants or for incineration under controlled conditions. In so doing, comply with the local and national regulations currently in force.

Additional disposal information:



**Safety Data Sheet**  
**MULTIFUNZIONE 200 GRAMMI**

Retrieve if possible. Send to authorized disposal plants or incineration under controlled conditions. Work according to local and national regulations. Recover if possible. Send to authorized disposal plants or for incineration under controlled conditions. Operate according to local and national regulations.

**SECTION 14: Transport information**



- 14.1. UN number  
ADR-UN Number: 2468  
IATA-UN Number: 2468  
IMDG-UN Number: 2468
- 14.2. UN proper shipping name  
ADR-Shipping Name: TRICHLOROISOCYANURIC ACID, DRY  
IATA-Shipping Name: TRICHLOROISOCYANURIC ACID, DRY  
IMDG-Shipping Name: TRICHLOROISOCYANURIC ACID, DRY
- 14.3. Transport hazard class(es)  
ADR-Class: 5.1  
ADR - Hazard identification number: 50  
IATA-Class: 5.1  
IMDG-Class: 5.1
- 14.4. Packing group  
ADR-Packing Group: II  
IATA-Packing group: II  
IMDG-Packing group: II
- 14.5. Environmental hazards  
ADR-Environmental Pollutant: Yes  
IMDG-Marine pollutant: Marine Pollutant
- 14.6. Special precautions for user  
ADR-Subsidiary risks: -  
ADR-S.P.: -  
ADR-Transport category (Tunnel restriction code): 2 (E)  
IATA-Passenger Aircraft: 558  
IATA-Subsidiary risks: -  
IATA-Cargo Aircraft: 562  
IATA-S.P.: -  
IATA-ERG: 5L  
IMDG-EmS: F-A , S-Q  
IMDG-Subsidiary risks: -  
IMDG-Stowage and handling: Category A  
IMDG-Segregation: Keep as dry as reasonably practicable.
- 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code  
N.A.

**SECTION 15: Regulatory information**

- 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture  
Dir. 98/24/EC (Risks related to chemical agents at work)  
Dir. 2000/39/EC (Occupational exposure limit values)  
Regulation (EC) n. 1907/2006 (REACH)  
Regulation (EC) n. 1272/2008 (CLP)  
Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013  
Regulation (EU) 2015/830

**Safety Data Sheet**  
**MULTIFUNZIONE 200 GRAMMI**

Regulation (EU) n. 286/2011 (ATP 2 CLP)  
Regulation (EU) n. 618/2012 (ATP 3 CLP)  
Regulation (EU) n. 487/2013 (ATP 4 CLP)  
Regulation (EU) n. 944/2013 (ATP 5 CLP)  
Regulation (EU) n. 605/2014 (ATP 6 CLP)  
Regulation (EU) n. 2015/1221 (ATP 7 CLP)

Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:

Restrictions related to the product:

No restriction.

Restrictions related to the substances contained:

No restriction.

Where applicable, refer to the following regulatory provisions :

Directive 2012/18/EU (Seveso III)

Regulation (EC) nr 648/2004 (detergents).

Dir. 2004/42/EC (VOC directive)

Provisions related to directive EU 2012/18 (Seveso III):

Seveso III category according to Annex 1, part 1

Product belongs to category: E1

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for the mixture.

Substances for which a Chemical Safety Assessment has been carried out:

None

**SECTION 16: Other information**

**For professional use.**

Full text of phrases referred to in Section 3:

H272 May intensify fire; oxidiser.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

H302 Harmful if swallowed.

H315 Causes skin irritation.

H290 May be corrosive to metals.

H318 Causes serious eye damage.

Hazard class and hazard category	Code	Description
Ox. Sol. 2	2.14/2	Oxidising solid, Category 2
Met. Corr. 1	2.16/1	Substance or mixture corrosive to metals, Category 1
Acute Tox. 4	3.1/4/Oral	Acute toxicity (oral), Category 4
Skin Irrit. 2	3.2/2	Skin irritation, Category 2
Eye Dam. 1	3.3/1	Serious eye damage, Category 1
Eye Irrit. 2	3.3/2	Eye irritation, Category 2
STOT SE 3	3.8/3	Specific target organ toxicity - single exposure, Category 3
Aquatic Acute 1	4.1/A1	Acute aquatic hazard, category 1
Aquatic Chronic 1	4.1/C1	Chronic (long term) aquatic hazard, category 1

**Safety Data Sheet**  
**MULTIFUNZIONE 200 GRAMMI**

Paragraphs modified from the previous revision:

SECTION 1: Identification of the substance/mixture and of the company/undertaking  
SECTION 2: Hazards identification  
SECTION 3: Composition/information on ingredients  
SECTION 4: First aid measures  
SECTION 5: Firefighting measures  
SECTION 6: Accidental release measures  
SECTION 7: Handling and storage  
SECTION 8: Exposure controls/personal protection  
SECTION 9: Physical and chemical properties  
SECTION 10: Stability and reactivity  
SECTION 11: Toxicological information  
SECTION 12: Ecological information  
SECTION 15: Regulatory information  
SECTION 16: Other information

This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre,  
Commission of the European Communities  
SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van  
Nostrand Reinold

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.

It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This MSDS cancels and replaces any preceding release.

For professional use.

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.  
CAS: Chemical Abstracts Service (division of the American Chemical Society).  
CLP: Classification, Labeling, Packaging.  
DNEL: Derived No Effect Level.  
EINECS: European Inventory of Existing Commercial Chemical Substances.  
GefStoffVO: Ordinance on Hazardous Substances, Germany.  
GHS: Globally Harmonized System of Classification and Labeling of Chemicals.  
IATA: International Air Transport Association.  
IATA-DGR: Dangerous Goods Regulation by the "International Air Transport Association" (IATA).  
ICAO: International Civil Aviation Organization.  
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO).  
IMDG: International Maritime Code for Dangerous Goods.  
INCI: International Nomenclature of Cosmetic Ingredients.  
KSt: Explosion coefficient.  
LC50: Lethal concentration, for 50 percent of test population.  
LD50: Lethal dose, for 50 percent of test population.  
PNEC: Predicted No Effect Concentration.  
RID: Regulation Concerning the International Transport of Dangerous Goods by Rail.  
STEL: Short Term Exposure limit.  
STOT: Specific Target Organ Toxicity.

**Safety Data Sheet**  
**MULTIFUNZIONE 200 GRAMMI**

TLV: Threshold Limiting Value.  
TWA: Time-weighted average  
WGK: German Water Hazard Class.