



SAFETY DATA SHEET

(REACH regulation (EC) n° 1907/2006 - n° 2020/878)

SECTION 1 : IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name : GRAVOXIDE

1.2. Relevant identified uses of the substance or mixture and uses advised against

Designed to blacken fine engraving on Gravometall

1.3. Details of the supplier of the safety data sheet

Registered company name : GRAVOTECH MARKING SAS.
Address : 56, avenue Jean Jaurès.10600.La Chapelle Saint Luc.France.
Telephone : +33 (0)3 25 41 65 65. Fax : +33 (0)3 25 79 04 25.
e-mail : info@gravograph.fr
http://www.gravograph.com

1.4. Emergency telephone number : +33 (0)1 45 42 59 59.

Association/Organisation : INRS / ORFILA <http://www.centres-antipoison.net>.

Other emergency numbers

National Poisons Information Service of England: <http://npis.org> - NHS 111: dial 111 - National Poisons Information Centre of Ireland: 353 (1) 809 2166 - LUXEMBOURG : (+352) 8002 5500 - European Emergency Number Association (EENA) : 112

SECTION 2 : HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

In compliance with EC regulation No. 1272/2008 and its amendments.

Acute oral toxicity, Category 3 (Acute Tox. 3, H301).
Skin corrosion, Category 1 (Skin Corr. 1, H314).
Serious eye damage, Category 1 (Eye Dam. 1, H318).
Specific target organ toxicity (repeated exposure), Category 2 (STOT RE 2, H373).
Hazardous to the aquatic environment - Acute hazard, Category 1 (Aquatic Acute 1, H400).
Hazardous to the aquatic environment - Chronic hazard, Category 2 (Aquatic Chronic 2, H411).
This mixture does not present a physical hazard. Refer to the recommendations regarding the other products present on the site.

2.2. Label elements

In compliance with EC regulation No. 1272/2008 and its amendments.

Hazard pictograms :



GHS05

GHS09

GHS08

GHS06

Signal Word :

DANGER

Product identifiers :

EC 231-974-7

SELENIOUS ACID

029-023-00-4

COPPER SULPHATE PENTAHYDRATE

Hazard statements :

H301

Toxic if swallowed.

H314

Causes severe skin burns and eye damage.

H373

May cause damage to organs through prolonged or repeated exposure .

H410

Very toxic to aquatic life with long lasting effects.

Precautionary statements - Prevention :

P220	Keep away from clothing and other combustible materials.
P260	Do not breathe vapours.
P264	Wash hands thoroughly after handling.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statements - Response :

P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P314	Get medical advice/attention if you feel unwell.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.

Precautionary statements - Disposal :

P501	Dispose of contents/container at a disposal facility in accordance with local regulations.
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2.3. Other hazards

The mixture does not contain substances classified as 'Substances of Very High Concern' (SVHC) $\geq 0.1\%$ published by the European Chemicals Agency (ECHA) under article 57 of REACH: <http://echa.europa.eu/fr/candidate-list-table>

The mixture fulfils neither the PBT nor the vPvB criteria for mixtures in accordance with annexe XIII of the REACH regulations EC 1907/2006.

The mixture does not contain substances $\geq 0.1\%$ with endocrine disrupting properties in accordance with the criteria of the Delegated Regulation (EU) 2017/2100 of the Commission or Regulation (EU) 2018/605 of the Commission.

SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS
3.2. Mixtures

Composition :

Identification	Classification (EC) 1272/2008	Note	%
INDEX: 015-011-00-6 CAS: 7664-38-2 EC: 231-633-2 REACH: 01-2119485924-24	GHS05 Dgr Skin Corr. 1B, H314	B [1]	2.5 \leq x % < 10
PHOSPHORIC ACID CAS: 7783-00-8 EC: 231-974-7 REACH: 01-2119548405-38	GHS06, GHS09, GHS08 Dgr Acute Tox. 3, H301 Acute Tox. 3, H331 STOT RE 2, H373 Aquatic Acute 1, H400 M Acute = 1 Aquatic Chronic 1, H410 M Chronic = 1	A	2.5 \leq x % < 10
INDEX: 029-023-00-4 CAS: 7758-99-8 EC: 231-847-6 REACH: 01-2119520566-40	GHS07, GHS05, GHS09 Dgr Acute Tox. 4, H302 Eye Dam. 1, H318 Aquatic Acute 1, H400 M Acute = 10 Aquatic Chronic 1, H410 M Chronic = 1		2.5 \leq x % < 10
COPPER SULPHATE PENTAHYDRATE			
CAS: 13106-76-8 EC: 236-031-3	GHS07 Wng Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335	[XVII]	2.5 \leq x % < 10
AMMONIUM MOLYBDATE(VI)			

INDEX: 030-006-00-9 CAS: 7733-02-0 EC: 231-793-3 REACH: 01-2119474684-27 ZINC SULPHATE (ANHYDROUS)	GHS05, GHS07, GHS09 Dgr Acute Tox. 4, H302 Eye Dam. 1, H318 Aquatic Acute 1, H400 M Acute = 1 Aquatic Chronic 1, H410 M Chronic = 1	1 <= x % < 2.5
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 **Specific concentration limits:**

Identification	Specific concentration limits	ATE
INDEX: 015-011-00-6 CAS: 7664-38-2 EC: 231-633-2 REACH: 01-2119485924-24 PHOSPHORIC ACID	Skin Corr. 1B: H314 C>= 25% Skin Irrit. 2: H315 10% <= C < 25% Eye Dam. 1: H318 C>= 25% Eye Irrit. 2: H319 10% <= C < 25%	
INDEX: 029-023-00-4 CAS: 7758-99-8 EC: 231-847-6 REACH: 01-2119520566-40 COPPER SULPHATE PENTAHYDRATE		oral: ATE = 481 mg/kg BW

 **Information on ingredients :**

(Full text of H-phrases: see section 16)

[XVII] Restricted substance under Regulation (EC) No. 1907/2006 (REACH), Annex XVII.

[1] Substance for which maximum workplace exposure limits are available.

SECTION 4 : FIRST AID MEASURES

As a general rule, in case of doubt or if symptoms persist, always call a doctor.

NEVER induce swallowing by an unconscious person.

 **4.1. description of first aid measures****In the event of splashes or contact with eyes :**

Wash thoroughly with fresh, clean water for 15 minutes holding the eyelids open.


Regardless of the initial state, refer the patient to an ophthalmologist and show him the label.

 **In the event of splashes or contact with skin :**

Remove any soiled or splashed clothing immediately.

Watch out for any remaining product between skin and clothing, watches, shoes, etc.

If the contaminated area is widespread and/or there is damage to the skin, a doctor must be consulted or the patient transferred to hospital.

 **In the event of swallowing :**

Do not give the patient anything orally.

Seek medical attention immediately, showing the label.

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

No data available.

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

No data available.

SECTION 5 : FIREFIGHTING MEASURES

Non-flammable.

5.1. Extinguishing media

No data available.

5.2. Special hazards arising from the substance or mixture

A fire will often produce a thick black smoke. Exposure to decomposition products may be hazardous to health.

Do not breathe in smoke.

In the event of a fire, the following may be formed :

N/A

N/A

5.3. Advice for firefighters

No data available.

SECTION 6 : ACCIDENTAL RELEASE MEASURES**6.1. Personal precautions, protective equipment and emergency procedures**

Consult the safety measures listed under headings 7 and 8.

**For non first aid worker**

Avoid any contact with the skin and eyes.

For first aid worker

First aid workers will be equipped with suitable personal protective equipment (See section 8).

6.2. Environmental precautions

Contain and control the leaks or spills with non-combustible absorbent materials such as sand, earth, vermiculite, diatomaceous earth in drums for waste disposal.

Prevent any material from entering drains or waterways.

6.3. Methods and material for containment and cleaning up

Neutralise with an alkaline decontaminant, such as an aqueous solution of sodium carbonate or similar.

If the ground is contaminated, once the product has been recovered by sponging with an inert and non-combustible absorbent material, wash the contaminated area in plenty of water.

Clean preferably with a detergent, do not use solvents.

6.4. Reference to other sections

No data available.

SECTION 7 : HANDLING AND STORAGE

Requirements relating to storage premises apply to all facilities where the mixture is handled.

7.1. Precautions for safe handling

Always wash hands after handling.

Remove and wash contaminated clothing before re-using.

Emergency showers and eye wash stations will be required in facilities where the mixture is handled constantly.

**Fire prevention :**

Prevent access by unauthorised personnel.

**Recommended equipment and procedures :**

For personal protection, see section 8.

Observe precautions stated on label and also industrial safety regulations.

Avoid exposure - obtain special instructions before use.

Prohibited equipment and procedures :

No smoking, eating or drinking in areas where the mixture is used.

7.2. Conditions for safe storage, including any incompatibilities

No data available.

**Storage**

Keep away from food and drink, including those for animals.

Packaging

Always keep in packaging made of an identical material to the original.

7.3. Specific end use(s)

No data available.

SECTION 8 : EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1. Control parameters****Occupational exposure limits :**

- European Union (2022/431, 2019/1831, 2017/2398, 2017/164, 2009/161, 2006/15/CE, 2000/39/CE, 98/24/CE) :

CAS	VME-mg/m ³ :	VME-ppm :	VLE-mg/m ³ :	VLE-ppm :	Notes :
7664-38-2	1	-	2	-	-

- ACGIH TLV (American Conference of Governmental Industrial Hygienists, Threshold Limit Values, 2010) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
7664-38-2	1 mg/m ³	3 mg/m ³			

- Germany - AGW (BAuA - TRGS 900, 02/2022) :

CAS	VME :	VME :	Excess	Notes
7664-38-2		2E mg/m ³		2(l)

- Australia (NOHSC: 3008, 1995) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :

7664-38-2	1 mg/m ³	3 mg/m ³		H		
- Austria (BGBl. II Nr. 156/2021) :						
CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :	
7664-38-2	1 mg/m ³	2 mg/m ³				
- Belgium (Royal decree of 11/05/2021) :						
CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :	
7664-38-2	1 mg/m ³	2 mg/m ³				
- France (INRS - Outils 65 / 2021-1849, 2021-1763, decree of 09/12/2021) :						
CAS	VME-ppm :	VME-mg/m ³ :	VLE-ppm :	VLE-mg/m ³ :	Notes :	TMP No :
7664-38-2	0.2	1	0.5	2	-	-
- Switzerland (Suva 2021) :						
CAS	VME	VLE	Valeur plafond	Notations		
7664-38-2	2 ppm	4 ppm				
- UK / WEL (Workplace exposure limits, EH40/2005, Fourth Edition 2020) :						
CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :	
7664-38-2	1 mg/m ³	2 mg/m ³				
- USA / OSHA PEL (Occupational Safety and Health Administration, Permissible Exposure Limits) :						
CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :	
7664-38-2	1 mg/m ³					

8.2. Exposure controls

Personal protection measures, such as personal protective equipment

Pictogram(s) indicating the obligation of wearing personal protective equipment (PPE) :



Use personal protective equipment that is clean and has been properly maintained.

Store personal protective equipment in a clean place, away from the work area.

Never eat, drink or smoke during use. Remove and wash contaminated clothing before re-using. Ensure that there is adequate ventilation, especially in confined areas.

- Eye / face protection

Avoid contact with eyes.

Use eye protectors designed to protect against liquid splashes

Before handling, wear safety goggles with protective sides accordance with standard EN166.

In the event of high danger, protect the face with a face shield.

Prescription glasses are not considered as protection.

Individuals wearing contact lenses should wear prescription glasses during work where they may be exposed to irritant vapours.

Provide eyewash stations in facilities where the product is handled constantly.

- Hand protection

Use suitable protective gloves that are resistant to chemical agents in accordance with standard EN ISO 374-1.

Gloves must be selected according to the application and duration of use at the workstation.

Protective gloves need to be selected according to their suitability for the workstation in question : other chemical products that may be handled, necessary physical protections (cutting, pricking, heat protection), level of dexterity required.

Type of gloves recommended :

- PVC (polyvinyl chloride)

- Butyl Rubber (Isobutylene-isoprene copolymer)

- Body protection

Avoid skin contact.

Wear suitable protective clothing.

Suitable type of protective clothing :

In the event of substantial spatter, wear liquid-tight protective clothing against chemical risks (type 3) in accordance with EN14605/A1 to prevent skin contact.

In the event of a risk of splashing, wear protective clothing against chemical risks (type 6) in accordance with EN13034/A1 to prevent skin contact.

Wear suitable protective clothing, in particular overalls and boots. These items must be kept in good condition and cleaned after use.

Work clothing worn by personnel shall be laundered regularly.

After contact with the product, all parts of the body that have been soiled must be washed.

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state

Physical state :	Fluid liquid.
 Colour	
Colour:	Blue.
 Odour	
Odour threshold :	Not stated.
Odour:	Odourless.
 Freezing point	
Freezing point / Freezing range :	Not stated.
 Boiling point or initial boiling point and boiling range	
Boiling point/boiling range :	100 °C.
 Flammability	
Flammability (solid, gas) :	Not stated.
 Lower and upper explosion limit	
Explosive properties, lower explosivity limit (%) :	Not stated.
Explosive properties, upper explosivity limit (%) :	Not stated.
 Flash point	
Flash point interval :	Not relevant.
 Auto-ignition temperature	
Self-ignition temperature :	Not relevant.
 Decomposition temperature	
Decomposition point/decomposition range :	Not relevant.
 pH	
pH :	0.99 .
	Strongly acidic.
pH (aqueous solution) :	Not stated.
 Kinematic viscosity	
Viscosity :	Not stated.
 Solubility	
Water solubility :	Dilutable.
Fat solubility :	Not stated.
 Partition coefficient n-octanol/water (log value)	
Partition coefficient: n-octanol/water :	Not stated.
 Vapour pressure	
Vapour pressure (50°C) :	Not relevant.
 Density and/or relative density	
Density :	1.094
 Relative vapour density	
Vapour density :	< 1 (air = 1)
 9.2. Other information	
No data available.	
 9.2.1. Information with regard to physical hazard classes	
No data available.	
 9.2.2. Other safety characteristics	
No data available.	
 Evaporation rate	
Evaporation rate :	< 1 (Ethyl Ether = 1)

SECTION 10 : STABILITY AND REACTIVITY

10.1. Reactivity

No data available.

10.2. Chemical stability

This mixture is stable under the recommended handling and storage conditions in section 7.

10.3. Possibility of hazardous reactions

No data available.

10.4. Conditions to avoid

No data available.

10.5. Incompatible materials

N/A

10.6. Hazardous decomposition products

The thermal decomposition may release/form :

N/A

N/A

SECTION 11 : TOXICOLOGICAL INFORMATION



11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxic if swallowed.

May cause irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis, following exposure for up to three minutes.

Corrosive reactions are typified by ulcers, bleeding, bloody scabs, and, by the end of observation at 14 days, by discolouration due to blanching of the skin, complete areas of alopecia, and scars.

May cause severe damage to organs in the event of repeated or prolonged exposure.



11.1.1. Substances

Acute toxicity :

COPPER SULPHATE PENTAHYDRATE (CAS: 7758-99-8)

Oral route : LD50 = 481 mg/kg bodyweight/day

11.1.2. Mixture

Acute toxicity :

Oral route : Highly toxic if swallowed.
200 < LD50 <= 300 mg/kg

Skin corrosion/skin irritation :

Corrosive classification is based on an extreme pH value.



11.2. Information on other hazards



SECTION 12 : ECOLOGICAL INFORMATION

Very toxic to aquatic life with long lasting effects.

The product must not be allowed to run into drains or waterways.

12.1. Toxicity

12.1.2. Mixtures

No aquatic toxicity data available for the mixture.

12.2. Persistence and degradability

No data available.

12.3. Bioaccumulative potential

No data available.

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

No data available.



12.6. Endocrine disrupting properties

No data available.



12.7. Other adverse effects

No data available.



German regulations concerning the classification of hazards for water (WGK, AwSV Annex I, KBws) :

WGK 3 : Extremely hazardous for water.

SECTION 13 : DISPOSAL CONSIDERATIONS

Proper waste management of the mixture and/or its container must be determined in accordance with Directive 2008/98/EC.

13.1. Waste treatment methods

Do not pour into drains or waterways.



Waste :

Waste management is carried out without endangering human health, without harming the environment and, in particular without risk to water, air,

soil, plants or animals.

Recycle or dispose of waste in compliance with current legislation, via a certified collector or company.

Do not contaminate the ground or water with waste, do not dispose of waste into the environment.

Soiled packaging :

Empty container completely. Keep label(s) on container.

Give to a certified disposal contractor.

SECTION 14 : TRANSPORT INFORMATION

Transport product in compliance with provisions of the ADR for road, RID for rail, IMDG for sea and ICAO/IATA for air transport (ADR 2023 - IMDG 2020 [40-20] - ICAO/IATA 2023 [64]).

14.1. UN number or ID number

2922

14.2. UN proper shipping name

UN2922=CORROSIVE LIQUID, TOXIC, N.O.S.
(phosphoric acid ...%, selenious acid)

14.3. Transport hazard class(es)

- Classification :



8+6.1

14.4. Packing group

I

14.5. Environmental hazards

- Environmentally hazardous material :



14.6. Special precautions for user

ADR/RID	Class	Code	Pack gr.	Label	Ident.	LQ	Provis.	EQ	Cat.	Tunnel
	8	CT1	I	8+6.1	886	0	274	E0	1	C/D
IMDG	Class	2°Label	Pack gr.	LQ	EMS	Provis.	EQ	Stowage Handling	Segregation	
	8	6.1	I	0	F-A. S-B	274	E0	Category B SW2	-	
IATA	Class	2°Label	Pack gr.	Passager	Passager	Cargo	Cargo	note	EQ	
	8	6.1	I	850	0.5 L	854	2.5 L	A3 A4 A803	E0	
	8	6.1	I	Forbidden	Forbidden	-	-	A3 A4 A803	E0	

For limited quantities, see part 2.7 of the OACI/IATA and chapter 3.4 of the ADR and IMDG.

For excepted quantities, see part 2.6 of the OACI/IATA and chapter 3.5 of the ADR and IMDG.

Marine pollutant (IMDG 3.1.2.9):(copper sulphate pentahydrate)

14.7. Maritime transport in bulk according to IMO instruments

No data available.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Classification and labelling information included in section 2:

The following regulations have been used:

- EU Regulation No. 1272/2008 amended by EU Regulation No. 2022/692 (ATP 18)

Container information:

No data available.

**Restrictions applied under Title VIII of Regulation (EC) No. 1907/2006 (REACH):**

The mixture contains at least one restricted substance under Annex XVII of Regulation (EC) No. 1907/2006 (REACH):
<https://echa.europa.eu/substances-restricted-under-reach>. Please refer to Section 3 to identify the substance involved.

**Explosives precursors :**

The mixture does not contain any substance subject to Regulation (EU) 2019/1148 on the marketing and use of explosives precursors.

**Particular provisions :**

No data available.

**German regulations concerning the classification of hazards for water (WGK, AwSV Annex I, KBws) :**

WGK 3 : Extremely hazardous for water.

15.2. Chemical safety assessment

No data available.

SECTION 16 : OTHER INFORMATION

Since the user's working conditions are not known by us, the information supplied on this safety data sheet is based on our current level of knowledge and on national and community regulations.

The mixture must not be used for other uses than those specified in section 1 without having first obtained written handling instructions.

It is at all times the responsibility of the user to take all necessary measures to comply with legal requirements and local regulations.

The information in this safety data sheet must be regarded as a description of the safety requirements relating to the mixture and not as a guarantee of the properties thereof.

**Wording of the phrases mentioned in section 3 :**

H301	Toxic if swallowed.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H335	May cause respiratory irritation.
H373	May cause damage to organs through prolonged or repeated exposure .
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

**Abbreviations and acronyms :**

LD50 : The dose of a test substance resulting in 50% lethality in a given time period.

REACH : Registration, Evaluation, Authorization and Restriction of Chemical Substances.

ATE : Acute Toxicity Estimate

BW : Body Weight

STEL : Short-term exposure limit

TWA : Time Weighted Averages

TMP : French Occupational Illness table

TLV : Threshold Limit Value (exposure)

AEV : Average Exposure Value.

ADR : European agreement concerning the international carriage of dangerous goods by Road.

IMDG : International Maritime Dangerous Goods.

IATA : International Air Transport Association.

ICAO : International Civil Aviation Organisation

RID : Regulations concerning the International carriage of Dangerous goods by rail.

WGK : Wassergefährdungsklasse (Water Hazard Class).

GHS05 : Corrosion

GHS06 : Skull and crossbones

GHS08 : Health hazard

GHS09 : Environment

PBT: Persistent, bioaccumulable and toxic.

vPvB : Very persistent, very bioaccumulable.

SVHC : Substances of very high concern.