

BENEFITS

- For rotary and laser engraving
- High detail laser engraving

APPLICATIONS

Control panels, legend plates, award plates, interior and exterior signage

SPECIFICATIONS

Finish	Matt
Composition	Aluminium
Engraving depth	0.1 mm (.004")
Full sheet	1000 mm x 500 mm (39" x 19")
Half sheet	-
Quarter sheet	-
Other size	2000 mm x 1000 mm (78" x 39")

CAPABILITIES

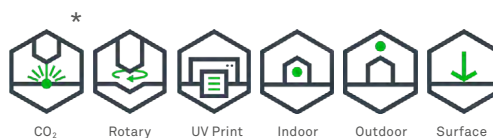
Interior	■
Exterior	■
Shear	■
Saw	■
Silk screen	■
Hot stamp	-
Heat bending	-
Scratch resistant	■
Flexible	-
Break resistant	■
UV resistant	■
Min. temp.	-40°C (-40°F)
Max. temp.	200°C (392°F)

TECH TIPS

Strong anodisation for a durable protection of the material.

Available sizes are 1000 mm x 500 mm (39" x 19") or 2000 mm x 1000 mm (78" x 39") on request. You can use Gravotech recommended paint to colour any Gravaxal™ engraving. See p.51.

Aloxide may be used to colour glossy plates (small characters) after rotary engraving.



Matt

		0.5 mm (.02")	1.0 mm (.04")	1.5 mm (1/16")	2.0 mm (1/12")	3.0 mm (1/8")	4.0 mm (1/6")
champagne		18581					
red		18577	18591				
green		18583	18597				
blue		18579	18593				
silver		18385	22055	18386	22057	22059	18388
gold		18571	18575	18589	18603		
bronze		18585	18599				
black		18569	18573	18587	18601	18614	

Silver colours are anodised on both sides during the continuous anodisation process.

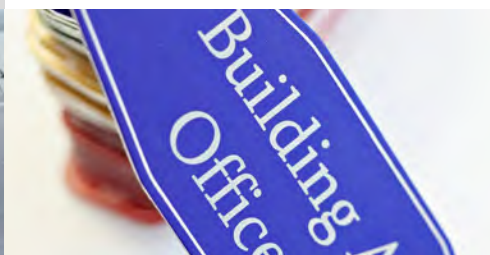
Protective film on one side.

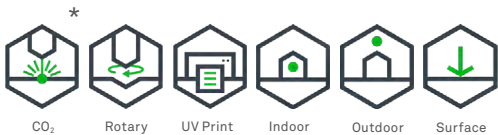
Due to the process, there can be stains in the corners of aluminium sheets.

* Laser engraving on coloured materials. The engraving contrast may vary according to the colour.



Printed colours for indication only. Cannot serve as a substitute for real material sample.





Glossy

			1.0 mm (.40")
			1.5 mm (1/16")
			2.0 mm (1/12")
champagne			18640
red			18636
			18658
green			18642
			18664
blue			18638
			18660
silver			18618
			18646
			18668
steel look			30381
			30382
			30383
gold			18630
			18654
			18674
black			18624
			18650
			18671

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Protective film on one side.

Due to the process, there can be stains in the corners of aluminium sheets.

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TECH TIPS

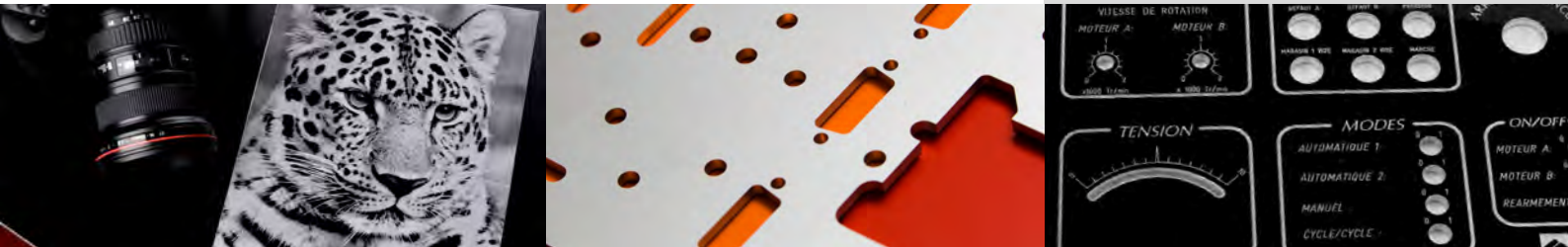
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Available sizes are 1000 mm x 500 mm (39" x 19") or 2000 mm x 1000 mm (78" x 39") on request. You can use Gravotech recommended paint to colour any Gravaxal™ engraving. See p.51.

Aloxide may be used to colour glossy plates (small characters) after rotary engraving.

Anodising process may produce slightly different colours from one batch to another.

Printed colours for indication only. Cannot serve as a substitute for real material sample.





SAFETY DATA SHEET

(REACH regulation (EC) n° 1907/2006 - n° 453/2010)

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

1.1. Product identifier

Product name : GRAVOXAL
Product code : GRAV 026.

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

Engraving product.

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>.

SECTION 2 : HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

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

This mixture does not present a physical hazard. Refer to the recommendations regarding the other products present on the site.
This mixture does not present a health hazard with the exception of possible occupational exposure thresholds (see paragraphs 3 and 8).
This mixture does not present an environmental hazard. No known or foreseeable environmental damage under standard conditions of use.

In compliance with directives 67/548/EEC, 1999/45/EC and their amendments.

This mixture does not present a physical hazard. Refer to the recommendations regarding the other products present on the site.
This mixture does not present a health hazard with the exception of possible occupational exposure thresholds (see paragraphs 3 and 8).
This mixture does not present an environmental hazard. No known or foreseeable environmental damage under standard conditions of use.

2.2. Label elements

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

No labelling requirements for this mixture.

In compliance with directives 67/548/EEC, 1999/45/EC and their amendments.

No labelling requirements for this mixture.

2.3. Other hazards

The mixture does not contain any substances classified as 'Substances of Very High Concern' (SVHC) by the European Chemicals Agency (ECHA) under article 57 of REACH: <http://echa.europa.eu/fr/candidate-list-table>
The mixture satisfies neither the PBT nor the vPvB criteria for mixtures in accordance with annexe XIII of the REACH regulations EC 1907/2006.
Dust and fumes may be generated during processing like welding, grinding or cutting.

SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

No substances fulfil the criteria set forth in annexe II section A of the REACH regulation (EC) n° 1907/2006.

3.2. Mixtures

Composition :

Identification	(EC) 1272/2008	67/548/EEC	Note	%
CAS: 7429-90-5 EC: 231-072-3			[1]	50 ≤ x % < 100

ALUMINIUM				
CAS: 7439-96-5 EC: 231-105-1			[1]	0 <= x % < 1
MANGANESE				
CAS: 7440-21-3 EC: 231-130-8			[1]	0 <= x % < 1
SILICON				
CAS: 7440-47-3 EC: 231-157-5			[1]	0 <= x % < 1
CHROMIUM				
CAS: 7440-50-8 EC: 231-159-6			[1]	0 <= x % < 1
COPPER				

Information on ingredients :

[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 exposure by inhalation :**

If exposure to significant concentrations of fumes or dust, remove person to fresh air - Consult a doctor if necessary.

In the event of splashes or contact with eyes :

Wash thoroughly with soft, clean water for 15 minutes holding the eyelids open.
If there is any redness, pain or visual impairment, consult an ophthalmologist.

In the event of splashes or contact with skin :

Watch out for any remaining product between skin and clothing, watches, shoes, etc.
Wash the skin thoroughly with soap and water or a recognised cleaner.

In the event of swallowing :

Seek medical attention, 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.
Cool product.

5.1. Extinguishing media**Unsuitable methods of extinction**

In the event of a fire, do not use :
- water

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.

5.3. Advice for firefighters

Due to the toxicity of the gas emitted on thermal decomposition of the products, fire-fighting personnel are to be equipped with autonomous insulating breathing apparatus.

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 fire-fighters

Fire-fighters will be equipped with suitable personal protective equipment (See section 8).

6.2. Environmental precautions

Prevent any material from entering drains or waterways.

6.3. Methods and material for containment and cleaning up

Retrieve the product by mechanical means (sweeping/vacuuming).

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.

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.

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.

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 (2009/161/EU, 2006/15/EC, 2000/39/EC, 98/24/EC)

CAS	VME-mg/m3 :	VME-ppm :	VLE-mg/m3 :	VLE-ppm :	Notes :
7440-47-3	2	-	-	-	-

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

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
7429-90-5	2 mg/m3	-	-	-	-
7439-96-5	0.2 mg/m3	-	-	-	-
7440-47-3	0.5 mg/m3	-	-	-	-
7440-50-8	0.2 mg/m3	-	-	-	-

- Germany - AGW (BAuA - TRGS 900, 21/06/2010) :

CAS	VME :	VME :	Excess	Notes
7439-96-5	-	0,5 mg/m3 E	-	DFG, Y, 10

- Belgium (Order of 19/05/2009, 2010) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
7429-90-5	10 mg/m3	-	-	-	-
7439-96-5	0.2 mg/m3	-	-	-	-
7440-21-3	10 mg/m3	-	-	-	-
7440-47-3	0.01 mg/m3	-	-	-	-
7440-50-8	1 mg/m3	-	-	-	-

- France (INRS - ED984 :2008) :

CAS	VME-ppm :	VME-mg/m3 :	VLE-ppm :	VLE-mg/m3 :	Notes :	TMP No :
7429-90-5	-	10	-	-	-	-
7439-96-5	-	1	-	-	-	-
7440-21-3	-	10	-	-	-	-
7440-47-3	-	2	-	-	-	-

- UK / WEL (Workplace exposure limits, EH40/2005, 2007) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
7429-90-5	2 mg/m3	-	-	-	-
7439-96-5	0.5 mg/m3	-	-	-	-
7440-21-3	10 mg/m3	-	-	-	TI

7440-47-3	0.05 mg/m3	-	-	-	-
7440-50-8	0.2 mg/m3	-	-	-	-

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.

Before handling powders or dust emission, wear mask goggles in accordance with standard EN166.

- Hand protection

Wear suitable protective gloves in the event of prolonged or repeated skin contact.

- Body protection

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.

- Respiratory protection

Avoid breathing dust.

Type of FFP mask :

Wear a disposable half-mask dust filter in accordance with standard EN149.

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

General information :

Physical state :	solid.
Colour:	Various.

Important health, safety and environmental information

pH :	Not relevant.
Flash point interval :	not relevant.
Vapour pressure (50°C) :	not relevant.
Density :	2.66 2.7 (20°C)
Water solubility :	Insoluble.
Melting point/melting range :	450 °C.

9.2. Other information

No data available.

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

Avoid :

- formation of dusts

Dusts can form an explosive mixture with air.

10.5. Incompatible materials

No data available.

10.6. Hazardous decomposition products

No data available.

SECTION 11 : TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

No data available.

11.1.1. Substances

No toxicological data available for the substances.

11.1.2. Mixture

No toxicological data available for the mixture.

SECTION 12 : ECOLOGICAL INFORMATION

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. Other adverse effects

No data available.

German regulations concerning the classification of hazards for water (WGK) :

WGK 1 (VwVwS vom 27/07/2005, KBws) : Slightly 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, preferably 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

Exempt from transport classification and labelling.

Transport product in compliance with provisions of the ADR for road, RID for rail, IMDG for sea and ICAO/IATA for air transport (ADR 2011 - IMDG 2010 - ICAO/IATA 2012).

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:

- Directive 67/548/EEC and its adaptations

- Directive 1999/45/EC and its adaptations

- Regulation EC 1272/2008 modified by regulation EC 286/2011

- Container information:

No data available.

- Particular provisions :

No data available.

- German regulations concerning the classification of hazards for water (WGK) :

Germany : WGK 1 (VwVwS vom 27/07/2005, KBws)

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.

Abbreviations :

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).