

BENEFITS

- Laser engraving and cutting
- Excellent for interior and exterior signage
- Unique 0.05mm (.002") cap layer for detailed engraving
- Excellent for photo lasering
- Thickness 0.25 mm (.01") with backing adhesive on demand.

APPLICATIONS

Badges, awards plates, interior and exterior signage

SPECIFICATIONS

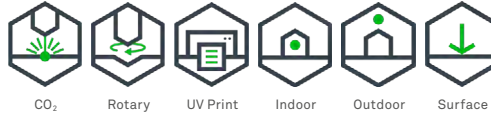
Finish	Matt
Composition	DR Acrylic
Engraving depth	0.1 mm (.004")
Full sheet	1220 mm x 610 mm (48" x 24")
Half sheet	610 mm x 610 mm (24" x 24")
Quarter sheet	610 mm x 305 mm (24" x 12")
Other size	-

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.	80°C (176°F)

TECH TIPS

Laser and rotary engraving, a versatile material for indoor and outdoor applications. For custom colours, see Custom materials on demand p. 08.



Matt \*

surface / core colour	2-ply	
	0.5 mm (.020")	1.6 mm (1/16")
white / black	18946	18984
yellow / black	18955	18993
orange / white		19000
orange / black		29499
red / white	18949	18987
red / black		29498
burgundy / white		18980
apple green / white	18970	19012
forest green / white		19001
pine green / white		29491
sky blue / white		70953
blue / white		18952
air force blue / white		29492
navy blue / white		29494
royal blue / white		19015
brown / white		29495
chocolate brown / white		29493
light grey / black		29496
taupe / white		29501
black / white		18943
black / gold		18976
glossy black / gold		18973*

\* Except 18973 glossy finish.



The dimensions indicated represent our minimal commitment. Printed colours for indication only. Cannot serve as a substitute for real material sample.



# GRAVOPLY™ ULTRA

V21-117



Effectiveness, productivity, precision, durability.  
Efficacité, productivité, précision, durabilité.

APPLICATIONS: Badges, awards plaques, indoor & outdoor signage...

APPLICATIONS : Badges, plaques de trophées, signalétique intérieur et extérieure...



SHEAR – Cisaille	◆	◆	SAW – Scie
SILK SCREEN – Sérigraphie	◆	◆	HOT STAMPING – Marquage à chaud
SCRATCH RESISTANT – Résistance à la rayure	◆		FLEXIBLE – Flexible
BREAK RESISTANT – Résistance à la cassure		◆	UV RESISTANT – Résistance aux UV

- Storage: Sheltered location, lay flat. Avoid storing straight on the floor.  
*Stockage : Local abrité, à plat. Eviter un stockage à même le sol.*
- Do not use solvents.  
*Ne pas utiliser de solvants.*
- Use gloves & protection glasses.  
*Manipuler avec des gants et des lunettes.*
- Electrical insulator: Yes.  
*Isolant électrique : Oui*
- Fixing techniques: Mechanical fixing or double-sided tape.  
*Techniques de fixation : Fixation mécanique ou adhésif double face.*
- Contact us for any other colour combinations. We can custom manufacture your badges and labels so that all you have to do is engrave them.  
*Pour toute autre combinaison de couleurs contactez-nous. Nous pouvons réaliser vos badges ou étiquettes ; il ne vous restera plus qu'à les graver.*

[www.gravotech.com](http://www.gravotech.com)



# GRAVOPLY™ ULTRA

## TECHNICAL DATA SHEET

SPECIFICATIONS	
MATERIAL – matière	PMMA
FINISH – finition	Matt – Mat
SHEET SIZE – taille des feuilles	1220 x 610 mm ± 3 mm / 24 3/4" x 48 3/4" ± 1/8"
THICKNESS – épaisseur	0.5 mm - 1.6 mm / 0.020" – 1/16"
MARKING METHOD – marquage	Laser, Rotary, UV print – Laser, Rotary, Impression UV
CUTTING DEPTH – profondeur de gravure	0.1 mm (.004")
TEMPERATURE RANGE – résistance en température	-40°C (-40 °F) + 80°C (176 °F)
UV RESISTANCE – résistance UV	1400 h QUV or 3 years without significant degradation 1400 h QUV ou 3 ans sans dégradation significative
SCRATCH RESISTANCE – résistance à l'abrasion	TABER test >500 cycles CS17 / 250g – Test TABER >500 cycles CS17 / 250g
FLAMMABILITY – inflammabilité	94 HB on UL94 test

PHYSICAL PROPERTIES	VALUES	ASTM METHOD
SPECIFIC GRAVITY – densité	1.15	ASTM D-792
HARDNESS ROCKWELL – dureté	45M	ASTM D-785
TENSILE STRENGTH – résistance à la traction	38 MPa	ASTM D-638
TENSILE MODULUS – module de traction	1.8 GPa	ASTM D-638
IZOD IMPACT STRENGTH (AT 23°C) – impact au choc IZOD	6.3 KJ/m <sup>2</sup>	ASTM D-256
FLEXURAL MODULUS – module de flexion	1.7 GPa	ASTM D-790
FLEXURAL STRENGTH – contrainte de flexion	62 MPa	ASTM D-790
ELONGATION AT BREAK – allongement à la rupture	40%	ASTM D-638
HDT TEMPERATURE AT WHICH MATERIAL DEFLECTS – température de fléchissement sous charge	88°C (1.82MPa) 93°C (0.455Mpa)	ASTM D-648
VICAT SOFTENING POINT – point de ramollissement VICAT	98°C (50°C/hr ;10N) 86°C (50°C/hr ;50N)	ASTM D-1525
COEFFICIENT OF THERMAL EXPANSION – coefficient expansion thermique	0.1x10 <sup>-5</sup>	ASTM D-696
THERMAL CONDUCTIVITY – conductivité thermique	30.6 x10 <sup>3</sup> W/(m <sup>2</sup> .K)	ASMT C-177
MELTING TEMPERATURE – température de fusion	235°C	-
SURFACE RESISTIVITY – conductivité surfacique	3.1 x10 <sup>7</sup> ohm.m	ASMT D-257
VOLUME RESISTIVITY – conductivité volumique	3.8 x10 <sup>11</sup> ohm.m	ASMT D-257

Gravotech warrants that its products comply with its technical specification within normal condition of use, without any other warranty including without being limited to any other warranty of merchantability, performance or suitability. Technical specifications result from data and technical report raised from suppliers or from Gravotech or external independent laboratory studies. Consequently each end user shall perform appropriate testing under real conditions of use to ensure consistency and adequacy of the product to its intended specific purpose and needs. Out of standard conditions of use as well as harsh conditions such as for example UV, hygrometry, salinity or temperature specifics shall be taken into account to avoid any product deterioration. End User shall be liable regarding its own testing results and therefore its final decision regarding suitability of the product according to Gravotech specifications and recommendation.

Gravotech garantit la conformité des produits à ses seules spécifications techniques dans des conditions normales d'utilisation et sans aucune autre garantie notamment de commercialisation, adaptabilité ou performance. Les spécifications données sont issues d'informations et rapports techniques collectés auprès des fournisseurs, ou de mesures effectuées par Gravotech ou par un laboratoire externe indépendant. Par conséquent il est nécessaire que chaque utilisateur effectue des tests appropriés en conditions réelles d'utilisation afin de s'assurer de l'adéquation du produit à ses besoins et usages spécifiques. Les conditions non standards voire extrêmes concernant notamment les conditions UV, l'hygrométrie, la salinité, ou la température doivent être impérativement prises en considération afin d'éviter toute détérioration du produit. L'utilisateur sera seul responsable du résultat de ces tests et du choix du produit adapté selon les recommandations et spécifications fournies par Gravotech.



## SAFETY DATA SHEET

(REACH regulation (EC) n° 1907/2006 - n° 2015/830)

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

#### 1.1. Product identifier

Product name : GRAVOPLY ULTRA  
Product code : GRAV 029.

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

Plastic engraving materials.

#### 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.

May produce an allergic reaction (EUH208).

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 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.

Additional labeling :

EUH208 Contains METHYL METHACRYLATE. May produce an allergic reaction.  
EUH210 Safety data sheet available on request.

#### 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.

### SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.2. Mixtures

##### Composition :

Identification	(EC) 1272/2008	Note	%
INDEX: 603-095-00-2 CAS: 2807-30-9 EC: 220-548-6 2-(PROPYLOXY)ETHANOL	GHS07 Wng Acute Tox. 4, H312 Eye Irrit. 2, H319	[1]	1 <= x % < 2.5
INDEX: 606-010-00-7 CAS: 108-94-1 EC: 203-631-1 REACH: 01-2119453616-35 CYCLOHEXANONE	GHS02, GHS07 Wng Flam. Liq. 3, H226 Acute Tox. 4, H332	[1]	1 <= x % < 2.5

INDEX: 607-035-00-6 CAS: 80-62-6 EC: 201-297-1 REACH: 01-2119452498-28  METHYL METHACRYLATE	GHS02, GHS07 Dgr Flam. Liq. 2, H225 STOT SE 3, H335 Skin Irrit. 2, H315 Skin Sens. 1, H317	D [1]	0 <= x % < 1
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(Full text of H-phrases: see section 16)

**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 :**

In the event of an allergic reaction, seek medical attention.

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

Wash thoroughly with fresh, 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.

In the event of an allergic reaction, seek medical attention.

**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****Suitable methods of extinction**

In the event of fire, use specifically suitable extinguishing agents.

**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 :

- carbon monoxide (CO)

- carbon dioxide (CO<sub>2</sub>)

**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 first aid worker**

First aid workers 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.

Remove and wash contaminated clothing before re-using.

**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 (2017/2398, 2017/164, 2009/161, 2006/15/CE, 2000/39/CE, 98/24/CE) :

CAS	VME-mg/m <sup>3</sup> :	VME-ppm :	VLE-mg/m <sup>3</sup> :	VLE-ppm :	Notes :
108-94-1	40.8	10	81.6	20	Peau
80-62-6	-	50	-	100	-

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

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
108-94-1	20 ppm	50 ppm		Skin; A3	
80-62-6	50 ppm	100 ppm		SEN; A4	

- Germany - AGW (BAuA - TRGS 900, 29/01/2018) :

CAS	VME :	VME :	Excess	Notes
2807-30-9		20 ppm 86 mg/m <sup>3</sup>		2(l)
108-94-1		20 ppm 80 mg/m <sup>3</sup>		1(l)
80-62-6		50 ppm 210 mg/m <sup>3</sup>		2(l)

- Belgium (Arrêté du 09/03/2014, 2014) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
108-94-1	10 ppm 40,8 mg/m <sup>3</sup>	20 ppm 81,6 mg/m <sup>3</sup>		D	
80-62-6	50 ppm 208 mg/m <sup>3</sup>	100 ppm 416 mg/m <sup>3</sup>			

- France (INRS - ED984 :2016) :

CAS	VME-ppm :	VME-mg/m <sup>3</sup> :	VLE-ppm :	VLE-mg/m <sup>3</sup> :	Notes :	TMP No :
108-94-1	10	40.8	20	81.6	-	84
80-62-6	50	205	100	410	-	82

- Switzerland (SUVAPRO 2017) :

CAS	VME	VLE	Valeur plafond	Notations
2807-30-9	20 ppm 85 mg/m <sup>3</sup>	40 ppm 170 mg/m <sup>3</sup>		R SSC
108-94-1	25 ppm 100 mg/m <sup>3</sup>	50 ppm 200 mg/m <sup>3</sup>		R B SSC
80-62-6	50 ppm 210 mg/m <sup>3</sup>	100 ppm 420 mg/m <sup>3</sup>		S SSC

- UK / WEL (Workplace exposure limits, EH40/2005, 2011) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
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108-94-1	10 ppm 41 mg/m <sup>3</sup>	20 ppm 82 mg/m <sup>3</sup>		Sk, BMGV	
80-62-6	50 ppm 208 mg/m <sup>3</sup>	100 ppm 416 mg/m <sup>3</sup>			

**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.

Use suitable protective gloves that are resistant to chemical agents in accordance with standard EN374.

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.

Recommended properties :

- Impervious gloves in accordance with standard EN374

**- 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.
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**Important health, safety and environmental information**

pH :	Not relevant.
Flash point interval :	Not relevant.
Vapour pressure (50°C) :	Not relevant.
Density :	1.15 - 1.19
Water solubility :	Insoluble.
Self-ignition temperature :	393 °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

- Keep away from :
- strong oxidising agents
  - acids
  - bases

#### 10.6. Hazardous decomposition products

- The thermal decomposition may release/form :
- carbon monoxide (CO)
  - carbon dioxide (CO<sub>2</sub>)

## 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

#### Respiratory or skin sensitisation :

Contains at least one sensitising substance. May cause an allergic reaction.

#### Monograph(s) from the IARC (International Agency for Research on Cancer) :

CAS 108-94-1 : IARC Group 3 : The agent is not classifiable as to its carcinogenicity to humans.

## 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, AwSV vom 18/04/2017, KBws) :

WGK 1 : 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.



**14.1. UN number**

-

**14.2. UN proper shipping name**

-

**14.3. Transport hazard class(es)**

-

**14.4. Packing group**

-

**14.5. Environmental hazards**

-

**14.6. Special precautions for user**

-

**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. 2018/669 (ATP 11)

**- Container information:**

No data available.

**- Particular provisions :**

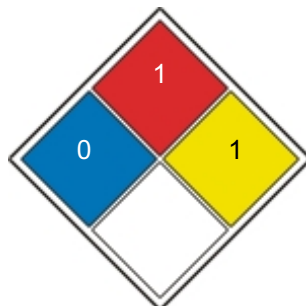
No data available.

**- German regulations concerning the classification of hazards for water (WGK, AwSV vom 18/04/2017, KBws) :**

WGK 1 : Slightly hazardous for water.

**- Standardised American system for the identification of hazards presented by the product in view of emergency procedures (NFPA 704) :**

NFPA 704, Labelling: Health=0 Inflammability=1 Instability/Reactivity=1 Specific Risk=none

**- Swiss ordinance on the incentive tax on volatile organic compounds :**

108-94-1

cyclohexanone

2807-30-9

2-propoxyéthanol

64-17-5

éthanol, seulement s'il s'agit d'alcools impropres à la consommation (art. 31 de la loi fédérale sur l'alcool)

**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 :**

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.

H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.

**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).

PBT: Persistent, bioaccumulable and toxic.

vPvB : Very persistent, very bioaccumulable.

SVHC : Substances of very high concern.