



SAFETY DATA SHEET

1 - IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Identification of the substance or preparation:

Name: LMM14 BLACK LASER MARKING AEROSOL.
Product code: LMM14AER.

Company/undertaking identification:

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

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

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

2 - HAZARDS IDENTIFICATION

This product is classified: Extremely flammable.
Possibility of irritation to the eyes and by inhalation.
Possibility of category three carcinogenic effects.
May produce an allergic reaction.
Repeated exposure may cause skin dryness or cracking.
Vapors may cause drowsiness and dizziness.

Preparation classification:


Harmful



Extremely flammable

R 36/37	Irritating to eyes and respiratory system.
R 12	Extremely flammable.
R 40	Limited evidence of a carcinogenic effect.
R 66	Repeated exposure may cause skin dryness or cracking.
R 67	Vapours may cause drowsiness and dizziness.

3 - COMPOSITION/INFORMATION ON INGREDIENTS

Full text of risk phrases appearing in section 3: see section 16.

Hazardous substances present on their own:

(present in the preparation at a sufficient concentration to give it the toxicological characteristics it would have in a 100% pure state)

INDEX	CAS	EC	Name	Symb.	R:	%
042-001-00-9	1313-27-5	215-204-7	MOLYBDENUM TRIOXIDE	Xn	36/37 40.C3	10 <= x % < 25

Other substances representing a hazard:

INDEX	CAS	EC	Name	Symb.	R:	%
606-001-00-8	67-64-1	200-662-2	ACETONE	Xi F	11 36 66 67	25 <= x % < 50

Substances present at a concentration below the minimum danger threshold:

No known substance in this category present.

Other substances with occupational exposure limits:

INDEX	CAS	EC	Name	Symb.	R:	%
	12001-26-2		MICA			1 <= x % < 2.5
	1309-37-1	215-168-2	DIIRON TRIOXIDE			1 <= x % < 2.5
	14808-60-7	238-878-4	QUARTZ (SIO2)			2.5 <= x % < 10

601-003-00-5	74-98-6	200-827-9	PROPANE	F+	12	10 <= x % < 25
601-004-00-0	75-28-5	200-857-2	ISOBUTANE	F+	12	10 <= x % < 25
					Note(s): C	
603-002-00-5	64-17-5	200-578-6	ETHANOL	F	11	10 <= x % < 25
	7439-96-5	231-105-1	MANGANESE			1 <= x % < 2.5
	7440-47-3	231-157-5	CHROMIUM			1 <= x % < 2.5

May produce an allergic reaction:

INDEX	CAS	EC	Name	Symb.	R:	%
028-002-00-7	7440-02-0	231-111-4	NICKEL	T	40.C3 43 48/23	0 <= x % < 1
					Note(s): 7 S	

4 - FIRST AID MEASURES

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

NEVER induce swallowing in an unconscious person.

In the event of exposure by inhalation:

In the event of inhalation, move the patient into the fresh air and keep him/her warm and still.

If breathing is irregular or has stopped, effect mouth-to-mouth resuscitation and call a doctor.

Do not give the patient anything orally.

If the person is unconscious, place in the recovery position and call an ambulance.

In the event of splashes or contact with eyes:

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

Refer the patient to an ophthalmologist, in particular if there is any redness, pain or visual impairment.

In the event of splashes or contact with skin:

Remove contaminated clothing and wash the skin thoroughly with soap and water or a recognised cleaner.

DO NOT use solvents or thinners.

In the event of swallowing:

In the event of swallowing, if the quantity is small (no more than one mouthful), rinse the mouth with water and consult a doctor.

Keep still. DO NOT induce vomiting.

Call a doctor immediately and show him the label.

5 - FIRE-FIGHTING MEASURES

Chemical powders, carbon dioxide and other extinguishing gas are suitable for small fires.

Suitable extinguishing media:

Special foams for polar liquids (known as alcohol resistant), powders, carbon dioxide.

In the event of fire, use specifically suitable extinguishing agents. Never use water.

Extinguishing media which must not be used for safety reasons:

Keep packages near the fire cool, to prevent pressurised containers from bursting.

Prevent the effluent of fire-fighting measures from entering drains or waterways.

Do not use compressed air during filling, emptying or handling.

Special protective equipment for fire-fighters:

Fire-fighting personnel are to be equipped with autonomous insulating breathing apparatus.

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.

6 - ACCIDENTAL RELEASE MEASURES

Personal precautions:

On account of the organic solvents contained in the preparation, eliminate sources of ignition and ventilate the premises.

Avoid inhaling the vapors.

Consult the safety measures listed under headings 7 and 8.

If a large quantity has been spilt, evacuate all personnel and only allow intervention by trained operators equipped with safety apparatus.

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.

Use drums to dispose of waste recovered in accordance with applicable regulations (see heading 13).

If the product contaminates waterways, rivers or drains, alert the relevant authorities in accordance with statutory procedures

Methods for cleaning up:

Clean preferably with a detergent, do not use solvents.

7 - HANDLING AND STORAGE

The regulations relating to storage premises apply to workshops where the product is handled.

Handling:

Handle in well-ventilated areas.

The vapors are denser than air. They can spread along the ground and form explosive mixtures with air

Prevent the formation of flammable or explosive concentrations in air and avoid vapor concentrations higher than the occupational exposure limits.

Do not spray on a naked flame or any incandescent material.

Fire prevention:

Use the product in premises where there are no naked flames or other sources of ignition and have protected electrical equipment

Keep packages tightly closed and away from sources of heat, sparks and naked flames.

Do not use tools which may produce sparks. Do not smoke.

Prevent access by unauthorised personnel.

Recommended equipment and procedures:

For personal safety, see §8.

Observe precautions stated on label and also industrial safety regulations

Packages which have been opened must be reclosed carefully and stored in an upright position

Avoid inhaling vapors. Carry out any industrial operation which may give rise to this in a sealed apparatus.

In all cases, recover emissions at source

Provide vapor extraction at the emission source and also general ventilation of the premises

Also provide breathing apparatus for certain short tasks of an exceptional nature and for emergency interventions

Do not breathe in aerosols.

Prohibited equipment and procedures:

Smoking, eating and drinking are prohibited in premises where the preparation is used

Never open the packages under pressure

Do not pierce or burn, even after use.

Storage:

Keep the container tightly closed in a dry, well-ventilated place

Keep away from all sources of ignition - do not smoke.

Pressurised container: protect from sunlight and do not expose to temperatures exceeding 50°C.

Keep out of reach of children

The floor must be impermeable and form a collecting basin so that, in the event of an accidental spillage, the liquid cannot spread beyond this area.

8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Use personal protection equipment as per Directive 89/686/EEC.

Technical measures:

Ensure adequate ventilation, if possible with extractor fans at work posts and appropriate general extraction.

Check the atmosphere periodically.

If this ventilation is insufficient to maintain the concentration of vapors below the exposure limits, wear breathing apparatus

Exposure limit values per INRS ED 984:

France	VME-ppm:	VME-mg/m3:	VLE-ppm:	VLE-mg/m3:	Notes:	TMP N°:
7440-47-3	-	2	-	-	-	-
67-64-1	500	1210	1000	2420	-	84
64-17-5	1000	1900	5000	9500	-	84
14808-60-7	-	0.1 A	-	-	-	25
1309-37-1	-	5	-	-	-	44.44 Bis.94
7440-02-0	-	1	-	-	C3	-

Exposure limit values per 2006/15/CE, 2000/39/EC and 98/24/EC:

EC	VME-mg/m3:	VME-ppm:	VLE-mg/m3:	VLE-ppm:	Notes:
7440-47-3	2	-	-	-	-
67-64-1	1210	500	-	-	-

Exposure limit values (2003-2006):

Germany/AGW	AGW:	AGW:	Faktor:	Bemerkungen:
7439-96-5	-	0,5 mg/m3 E	-	DFG, Y, 10
67-64-1	500 ml/m3	1200 mg/m3	2(I)	DFG
64-17-5	500 ml/m3	960 mg/m3	2(II)	DFG, Y
75-28-5	1000 ml/m3	2400 mg/m3	4(II)	DFG

74-98-6	1000 ml/m3	1800 mg/m3	4(II)	DFG		
Switzerland	VME-mg/m3:	VME-ppm:	VLE-mg/m3:	VLE-ppm:	Temps:	RSB:
7440-47-3	0,5 i	-	-	-	-	S*
7439-96-5	0,5 i	-	-	-	-	B
67-64-1	1200	500	2400	1000	4x15	B
64-17-5	960	500	1920	1000	4x15	-
75-28-5	1900	800	-	-	-	-
74-98-6	1800	1000	7200	4000	4x15	-
14808-60-7	0,15 a	-	-	-	-	-
1309-37-1	3a	-	-	-	-	-
12001-26-2	3a	-	-	-	-	-
7440-02-0	0,05 i	-	-	-	-	SB
UK/WELs	TWA:	STEL:	Ceiling:	Definition:	Criterion:	
7440-47-3	0.05 mg/m3	-	-	-	-	
7439-96-5	0.5 mg/m3	-	-	-	-	
67-64-1	500 ppm	1500 ppm	-	-	-	
64-17-5	1000 ppm	-	-	-	-	
14808-60-7	0.3 mg/m3	-	-	-	R	
1309-37-1	5 mg/m3	10 mg/m3	-	-	-	
12001-26-2	10 mg/m3	-	-	-	TI	
7440-02-0	0.1 mg/m3	-	-	-	-	
UK/OES	TWA:	STEL:	Ceiling:	Definition:	Criterion:	
7440-47-3	0.5 mg/m3	-	-	-	-	
7439-96-5	5 mg/m3	-	-	-	-	
7439-96-5	1 mg/m3	3 mg/m3	-	-	-	
67-64-1	500 ppm	1500 ppm	-	-	-	
64-17-5	1000 ppm	-	-	-	-	
1309-37-1	5 mg/m3	10 mg/m3	-	-	-	
1309-37-1	10 mg/m3	-	-	-	TI	
12001-26-2	10 mg/m3	-	-	-	TI	
12001-26-2	0.8 mg/m3	-	-	-	R	
7440-02-0	1 mg/m3	3 mg/m3	-	-	-	
UK/MEL	TWA:	STEL:	Ceiling:	Definition:	Criterion:	
7440-47-3	0.05 mg/m3	-	-	-	-	
14808-60-7	0.3 mg/m3	-	-	-	R	
7440-02-0	0.5 mg/m3	-	-	-	-	
7440-02-0	0.1 mg/m3	-	-	-	-	
ACGIH/TLV	TWA:	STEL:	Ceiling:	Definition:	Criterion:	
7440-47-3	0.5 mg/m3	-	-	-	-	
7440-47-3	0.05 mg/m3	-	-	-	-	
7439-96-5	0.2 mg/m3	-	-	-	-	
67-64-1	500 ppm	750 ppm	-	-	-	
64-17-5	1000 ppm	-	-	-	-	
75-28-5	1000 ppm	-	-	-	-	
74-98-6	1000 ppm	-	-	-	-	
14808-60-7	0.05 mg/m3	-	-	-	R	
1309-37-1	5 mg/m3	-	-	-	-	
12001-26-2	3 mg/m3	-	-	-	R	
7440-02-0	1.5 mg/m3	-	-	-	I	
7440-02-0	0.1 mg/m3	-	-	-	I	

Respiratory protection:

Anti-gas filters :

With this preparation, avoid in particular any inhalation of vapors.

Hand protection:

Type of gloves recommended :

- Butyl rubber

Protective creams may be used for exposed skin, but they should not be applied after contact with the product.

In the event of prolonged or repeated contact with the hands, use appropriate gloves.

Eye and face protection:

Avoid contact with eyes.

Wear safety goggles.

Provide eye washes in workshops where the product is constantly handled

Skin protection:

For further information, see § 11 of S.D.S. - Toxicological information.

9 - PHYSICAL AND CHEMICAL PROPERTIES

General information:

Physical state:	fluid liquid
	spray
Colour:	Black.

Important health, safety and environmental information:

pH of the substance or preparation:	not relevant.
The pH is impossible to measure or its value is not relevant.	
Explosive properties, lower explosivity limit (%):	2.2
Explosive properties, upper explosivity limit (%):	9.5
Vapour pressure:	Below 110 kPa (1.10 bar).
Density:	< 1
Water solubility:	Insoluble.
Evaporation rate:	< 1 (BuAc=1)

Other information:

% VOC:	84
--------	----

10 - STABILITY AND REACTIVITY

When exposed to high temperatures, the preparation may release dangerous decomposition products such as carbon monoxide and dioxide, smoke and nitrogen oxide

Any apparatus likely to produce a flame or to have a metallic surface at high temperature (burners, electric arcs, furnaces etc.) must not be allowed on the premises.

Conditions to avoid:

Heat, open flames and sparks.

11 - TOXICOLOGICAL INFORMATION

No data is available regarding the preparation itself.

Exposure to vapors from solvents contained in the preparation beyond the exposure limits stated may produce effects harmful to health, such as:

Irritation of mucous membrane and respiratory system, kidneys, liver and central nervous system.

Symptoms produced will include headaches, numbness, dizziness, fatigue, muscular asthenia and, in extreme cases, loss of consciousness.

Prolonged or repeated contact with the preparation may strip the skin of its natural oil and thus cause non-allergic dermatitis on contact and absorption through the epidermis.

Splashes in the eyes may cause irritation and reversible damage

It is generally agreed that substances contained are likely to cause serious irritation of the respiratory system and, when applied to the eye of an animal, the appearance of major lesions which persist for at least twenty-four hours.

It is generally agreed that substances contained are likely to cause category 3 carcinogenic effects.

Other data:

CAS 7440-02-0 : IARC Group 2B: The agent is possibly carcinogenic to humans.

CAS 1309-37-1 : IARC Group 3: The agent is not classifiable as to its carcinogenicity to humans.

CAS 14808-60-7 : IARC Group 1: The agent is carcinogenic to humans.

CAS 64-17-5 : IARC Group 1: The agent is carcinogenic to humans.

CAS 7440-47-3 : IARC Group 3: The agent is not classifiable as to its carcinogenicity to humans.

12 - ECOLOGICAL INFORMATION

No ecological data on the product itself is available.

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

Other adverse effects:

Germany: WGK 1 (VwVwS vom 17/05/99, KBws)

13 - DISPOSAL CONSIDERATIONS

Do not pour into drains or waterways.

Waste:

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.

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 2009 - IMDG 2008 - ICAO/IATA 2009).

Classification:



UN1950=AEROSOLS, flammable

ADR/RID	Class	Code	Pack gr.	Label	Ident.	LQ	Provis.	EQ	Cat.	Tunnel
	2	5F	-	2.1	-	LQ2	190 327 625	E0	2	D
IMDG	Class	2°Label	Pack gr.	LQ	EMS	Provis.	EQ			
	2.1	SP63	-	SP277	F-D,S-U	63 190 277 327 959	E0			
IATA	Class	2°Label	Pack gr.	Passager	Passager	Cargo	Cargo	note	EQ	
	2.1	-	-	203	75 kg	203	150 kg	A145 A153	E0	
	2.1	-	-	Y203	30 kg G	-	-	-	E0	

15 - REGULATORY INFORMATION

Classification by:

So called 'all preparations' Directive 1999/45/EC and its adaptations.
EC regulation 1272/2008 (CLP) and its adaptations (EC regulation 790/2009).

Preparation classification:



Harmful



Extremely flammable

Contains:

Contains 231-111-4	NICKEL. May produce an allergic reaction.
215-204-7	MOLYBDENUM TRIOXIDE

Particular hazards associated with the preparation and safety recommendations:

R 36/37	Irritating to eyes and respiratory system.
R 12	Extremely flammable.
R 40	Limited evidence of a carcinogenic effect.
R 66	Repeated exposure may cause skin dryness or cracking.
R 67	Vapours may cause drowsiness and dizziness.
S 16	Keep away from sources of ignition - No smoking.
S 23	Do not breathe vapour.
S 36/37	Wear suitable protective clothing and gloves.
	Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C.
	Do not pierce or burn, even after use.
	Do not spray on a naked flame or any incandescent material.
S 26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 60	This material and its container must be disposed of as hazardous waste.

Particular provisions:

Germany: WGK 1 (VwVwS vom 17/05/99, KBws)

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 product must not be used for any purposes other than those specified under heading 1 without first obtaining 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 given on this safety data sheet must be regarded as a description of the safety requirements relating to our product and not a guarantee of its properties

Full text of risk phrases appearing in section 3:

R 11	Highly flammable.
R 12	Extremely flammable.
R 36	Irritating to eyes.
R 36/37	Irritating to eyes and respiratory system.
R 40.C3	Limited evidence of a carcinogenic effect.
R 43	May cause sensitisation by skin contact.
R 48/23	Toxic: danger of serious damage to health by prolonged exposure through inhalation.
R 66	Repeated exposure may cause skin dryness or cracking.
R 67	Vapours may cause drowsiness and dizziness.