



Date of issue: 2011-01-01  
Date of revision: 2012-01-01  
Revision No: 0003\_2012

Safety data sheet: GALLIUM

REACH-Registration No.: 05-2114111907-51-0000 (pre-registration number)

## Safety data sheet

### 1. Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

**Product name: GALLIUM**

Trade name : gallium metal

CAS name: GALLIUM

CAS Number: 744055-3

EU name: GALLIUM

EU Number: 231-163-8

IUPAC name: no data

Company product codes: GALLIUM 4N; GALLIUM 6N; GALLIUM 7N

Substance type: one component, inorganic substance

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

industrial raw material; semi-conductor production

Uses advised against: no data

#### 1.3. Details of the supplier of the safety data sheet

**Manufacturer:**

**Name: MAL Magyar Alumínium Termelő és Kereskedelmi Zrt.**

Head-office: H-8400 Ajka, Gyártelep hrsz. 598/15

Country: Hungary

Company e-mail: [timfold@mal.hu](mailto:timfold@mal.hu)

Company homepage: [www.mal.hu](http://www.mal.hu)

Company telephone: (+36) 88 522 400

Company telefax: (+36) 88 311 634

Safety Data Sheet contact: [sds@mal.hu](mailto:sds@mal.hu)



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## 1.4. Emergency telephone number

National Emergency contact:

Name: **Egészségügyi Toxikológiai Tájékoztató Szolgálat**

Address: 1096 Budapest, Nagyvárad tér 2.

Country: Hungary

Phone: +36 1 476 6464; +36 80 201 199

Telefax: +36 1 476 1138

E-mail: [ettsz@okbi.antsz.hu](mailto:ettsz@okbi.antsz.hu)

Homepage: [www.okbi.hu](http://www.okbi.hu)

## 2. Hazards identification

### 2.1. Classification of the substance or mixture

Classification according to Directive 67/548/EEC:

R34: Causes burns

\*\*\* The metal gallium itself does not cause burns but it is a corrosive material. \*\*\*

C



corrosive

Precautionary statements (recommendation):

According to Directive 67/548/EEC:

S14: Keep away from alkalis, metals, oxidising materials and acids.

S35: This material and its container must be disposed in a safe way

S45: In case of accident or if you feel unwell seek medical advice immediately (show the label where possible)

S49: Keep only in the original container

S20/21: When using do not eat, drink or smoke



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S36/37/39: Wear suitable protective clothing, gloves and eye/face protection

## 2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008:

### Warning

H290 May be corrosive to metals.

GHS05



Warning

### Precautionary statements (recommendation):

According to Regulation (EC) No 1272/2008:

P234 Keep only in original container.

P390 Absorb spillage to prevent material damage.

P406 Store in corrosive resistant (polyethylene, polypropylene) container with a resistant inner liner.

P501 Dispose of contents/container to according to by-law.

P270 Do not eat, drink or smoke when using this product.

P281 Use personal protective equipment as required.

P391 Collect spillage.

P308 + P313 IF exposed or concerned: Get medical advice/attention.

## 2.3. Other hazards

no data



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### 3. Composition/information on ingredients

#### 3.1. Substances

Product name: GALLIUM  
CAS Number: 744055-3  
EU Number: 231-163-8  
Purity: > 99.9 % (w/w)

### 4. First aid measures

#### 4.1. Description of first aid measures

Inhalation: Can not be inhaled, because it's not vapouring.

Skin contact: Remove contaminated outwear! Clean skin with foam and warm water.

Eye contact: Flush with lot of water. In an emergency medical consultation.

Ingestion: Flush mouth than drink a plenty of water. In an emergency medical consultation. It is uncharacteristic in case of gallium, but if serious accident happen, unconscious injured not allowed to feed or to vomit.

Advice to medical treatment: No special proposal. Symptoms: not known.

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

Symptoms not known.

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

### 5. Firefighting measures

**The substance is inflammable and non-explosive**



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## 5.1. Extinguishing media

Suitable extinguishing media: Use fire fighting media appropriate for surrounding materials

Unsuitable extinguishing media: None.

Unsuitable extinguishing media appropriate for surrounding materials.

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

The gallium is inflammable.

## 5.3. Advice for firefighters

None

# 6. Accidental release measures

## 6.1. Personal precautions, protective equipment and emergency procedures

Only skillful staff can stay in the area of accident, who well knows the round of duties and wearing appropriate protection outfit. Incompetent people need to be kept away from the area.

## 6.2. Environmental precautions

If such accident has happened where the environment suffered damage, authorities need to be notified immediately. The material released to the environment and the waste need to be handled according to the environmental regulations. The release of the material to waters, soil and drainage need to be prohibited.

## 6.3. Methods and material for containment and cleaning up

The collected waste shall be stored in adequate, labelled, locker dangerous waste tank till expert removal/disposal.

## 6.4. Reference to other sections

See: 2.2. Label elements; 7. Handling and storage; 8. Exposure controls/personal protection; 13. Disposal considerations



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## 7. Handling and storage

**General: Handle in accordance with good industrial hygiene and safety practice. Wear suitable personal working cloth and protective equipment.**

### 7.1. Precautions for safe handling

Dust generation: No dust formation, solid.

Eating, hygiene in work area: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.

Precautions against fire and explosion: The substance is inflammable and non-explosive

### 7.2. Conditions for safe storage, including any incompatibilities

The material need to be stored in its original, closed and labelled storage. The ventillation and the cleansing of the storing room need to be adequate.

Condition of storage rooms and tanks: Keep it in a cool, dry place! Instructions on the label need to be kept.

Incompatible substances or mixtures: acids, alkali, halogenes, oxidising materials, aluminium.

Further information of storage: -

Packaging compatibilities: Packaging materials: Direct: polypropylene, polyethylene; Outer: paper, polystyrol.

### 7.3. Specific end use(s)

industrial raw material; semi-conductor production

## 8. Exposure controls/personal protection

### 8.1. Control parameters

Components with specific controlparameters as limit values: no data



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Exposure limits for industrial workers: no data.

Pursuant to the Regulation 25/2000. (IX. 30.) EüM-SZCSM együttes rendelet 7. § (6) - In case of dangerous material without limit value, employer is liable to reduce the exposition to the expectable scientific and technical minimum, on which level the dangerous material do not have any negative effect to the human health according to the all-time state of science.

**Exposure limits for professional workers : only industrial use**

**Exposure limits for consumers: only industrial use**

## 8.2. Exposure controls

### 8.2.1. Appropriate engineering controls

Not allowed to eat, smoke when using the material. Ensure the possibility of warm-water shower after work. Wash your hands after using.

### 8.2.2. Individual protection measures, such as personal protective equipment

Not necessary because of gallium, instructions to other materials used in the process shall be applied.

- (a) Eye / face protection: No special instructions.
- (b) Skin protection: Adequate protective outfit must be worn.
- (b.1) Hand protection: Adequate protective gloves must be used.
- (b.2) Other: No special instructions.
- (c) Respiratory protection: No special instructions.
- (d) Thermal hazards: No special instructions.

### 8.2.3. Environmental exposure controls

Instructions under point 8. in regular circumstances concern to professional work and normal use. If the usage happen under irregular or different circumstances, further round of duties and personal protective equipment need to be decided by expert.

## 9. Physical and chemical properties

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

- (a) Appearance: solid, silver-colour metal, with 28.9 oC melting pont



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- (b) Odour: no data
- (c) Odour threshold: no data
- (d) pH: not applicable
- (e) Melting point/freezing point: 29.8 oC
- (f) Initial boiling point and boiling range: 2200°C
- (g) Flash point: no data
- (h) Evaporation rate: no data
- (i) Flammability (solid, gas): not flammable
- (j) Upper/lower flammability or explosive limits: no data
- (k) Vapour pressure: no data
- (l) Vapour density: no data
- (m) Relative density: 5.91 g/cm<sup>3</sup> at 20 oC
- (n) Solubility(ies): no data
- (o) Partition coefficient n-octanol/water: no data
- (p) Auto-ignition temperature: no data
- (q) Decomposition temperature: no data
- (r) Viscosity: no data
- (s) Explosive properties: no data
- (t) Oxidising properties: it can form amalgam with metals (aluminium)

## 9.2. Other information

Granulometry: not applicable

## 10. Stability and reactivity

### 10.1. Reactivity

it can form amalgam with metals (aluminium); it can be solved in acids and alkalis.

### 10.2. Chemical stability

The substance is stable under normal conditions

### 10.3. Possibility of hazardous reactions

Dangerous reactions, incompatible materials: acids, alkali, halogenes, oxidising materials, aluminium.

### 10.4. Conditions to avoid

acids, alkalis, halogenes, oxidising materials, aluminium.





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## 10.5. Incompatible materials

acids, alkalis, halogenes, oxidising materials, aluminium.

## 10.6. Hazardous decomposition products

No hazardous decomposition products known

# 11. Toxicological information

## 11.1. Information on toxicological effects

### 11.1.1. Substances

- (a) acute toxicity: no data  
Acute Oral: no data  
Acute Inhalation: no data  
Acute Dermal: no data
- (b) skin corrosion/irritation: no data
- (c) serious eye damage/irritation: no data
- (d) respiratory or skin sensitisation: no data
- (e) germ cell mutagenicity: no data
- (f) carcinogenicity: no data
- (g) reproductive toxicity: no data
- (h) STOT-single exposure: no data
- (i) STOT-repeated exposure: no data
- (j) aspiration hazard: no data

# 12. Ecological information

**Not allowed to release the substance to water, rivers and soil.**

## 12.1. Toxicity

no data

## 12.2. Persistence and degradability

no data

## 12.3. Bioaccumulative potential

no data



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## 12.4. Mobility in soil

no data

## 12.5. Results of PBT and vPvB assessment

no data

## 12.6. Other adverse effects

no data.

## 13. Disposal considerations

According to the local regulations in the downstream user's country. Adequate waste-catalog code can not be given to the material, because the identification is based on the application of the downstream user. Within the Commission, the waste-catalog code can be given after reconciliation with disposal expert.

### 13.1. Waste treatment methods

Need to be disposed in accordance with the instructions respecting to the storing materials: paper, polypropylene polystyrol.

## 14. Transport information

### 14.1. UN number

UN numbers are four-digit numbers that identify hazardous substances

UN number: 2803 Gallium

### 14.2. UN proper shipping name

Overland freight:

ADR/RID class: 8

Sea freight:

IMDG class: 8



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Air freight:

ICAO/I ATA class: 8

## 14.3. Transport hazard class(es)

C10

## 14.4. Packing group

III

## 14.5. Environmental hazards

Not allowed to release the substance to water, rivers and soil.

## 14.6. Special precautions for user

None, regulations in the country of downstream user are effective.

## 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Uncharacteristic.

## 15. Regulatory information

This product is classified and labelled in accordance with EC directives.

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

REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006



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COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

Hungarian decree: 25/2000. (IX. 30.) EüM-SzCsM együttes rendelet a munkahelyek kémiai biztonságáról

Hungarian decree: 44/2000. (XII. 27.) EüM rendelet a veszélyes anyagokkal és a veszélyes készítményekkel kapcsolatos egyes eljárások, illetve tevékenységek részletes szabályairól

Hungarian regulation: 2000. évi XXV. Törvény a kémiai biztonságról

In Hungary according to the 98/2001 (VI. 15.) Korm. rendelet [módosítja: 340/2004 (XII. 22.) Korm. r.; 313/2005 (XII. 25.) Korm. r.] 16/2001 (VII. 18.) KöM rendelet 16/2001. (VII. 18.) KöM rendeletben [módosítja: 22/2004 (XII. 11.) KvVM r.]

In Hungary according to the Regulation 220/2004 (VII. 21.) Korm. rendelet [módosítja: 368/2004 (XII. 26.) Korm. r.; 340/2004 (XII. 22.) Korm. r.; 208/2006 (X. 16.) Korm. r.]

In Hungary, according to the Regulation 1993. évi XCIII. törvény a munkavédelemről, módosításai és vonatkozó NM, MUM

### 15.2. Chemical safety assessment

Registration deadline: 2018. Evaluation will be prepared till this date.

## 16. Other information

### Marking of revision:

1. - Since 28. 06. 2011. the version 0002\_2011 is valid. Because of important changes in form of Safety data sheet.
2. - Since 01. 01. 2012. the version 0003\_2012 is valid. Change in Head-office address of Manufacturer (chapter 1.3)



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### Abbreviations and acronyms:

PBT - Persistent, Bioaccumulative and Toxic chemicals

vPvB - very Persistent, very Bioaccumulative

LD - Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.

LC - Lethal Concentration. The concentration of the chemical in air that kills 50% of the test animals in a given time (usually four hours) is the LC50 value.

UVCB substances - substances of unknown or variable composition, complex reaction products or biological materials

CMR effects - carcinogenicity, mutagenicity and toxicity for reproduction

CAS - Chemical Abstracts Service (division of the American Chemical Society)

OSHA - Occupational Safety and Health Administration (US)

ADR - Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID - Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations concerning the International Transport of Dangerous Goods by Rail)

IMDG: - International Maritime Code for Dangerous Goods

IATA - International Air Transport Association

IATA-DGR - Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO - International Civil Aviation Organization

ICAO-TI - Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS - Globally Harmonized System of Classification and Labelling of Chemicals

EINECS - European Inventory of Existing Commercial Chemical Substances

PNEC - Potential No Effect Concentration

DNEL - Derived No Effect Level

DOC - Dissolved Organic Compounds

Bwt / bw - bodyweight



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### List of relevant R, S, H and P phrases:

#### According to Regulation (EC) No 1272/2008:

H290 May be corrosive to metals.

P234 Keep only in original container.

P390 Absorb spillage to prevent material damage.

P406 Store in corrosive resistant (polyethylene, polypropylene) container with a resistant inner liner.

P501 Dispose of contents/container to according to by-law.

P270 Do not eat, drink or smoke when using this product.

P281 Use personal protective equipment as required.

P391 Collect spillage.

P308 + P313 IF exposed or concerned: Get medical advice/attention.

#### According to Directive 67/548/EEC:

R34: Causes burns

S14: Keep away from alkalis, metals, oxidising materials and acids.

S35: This material and its container must be disposed in a safe way

S45: In case of accident or if you feel unwell seek medical advice immediately (show the label where possible)

S49: Keep only in the original container

S20/21: When using do not eat, drink or smoke

S36/37/39: Wear suitable protective clothing, gloves and eye/face protection

### Remarks:

This Safety Data Sheet contains our currently known information. The Safety Data Sheet was prepared according to our best knowledge, but only for information. Therefore the given data do not serve any guaranty or legal obligation concerning to characteristics of product.

This Safety Data Sheet serves for help to the user in making his own decision about suitability of the product to his own usage goals.

Because the handling, storing, using and annihilation are out of our competence, we preclude the responsibility concerning to the handling, storing, using and annihilation of the product.



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If the product is used as a component of an other product this Safety Data Sheet can not be used any more.

### Standard commercial types:

GALLIUM 4N, GALLIUM 6N, GALLIUM 7N

Any modification or change in the listing of commercial, standrad types does not mean the revision of Safety Data Sheet, since concerning the merrits remains unchanged.

### Prepared by:

MAL Magyar Alumínium Termelő és Kereskedelmi Zrt.

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