



SAFETY DATA SHEET

MATERION

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name or designation of the mixture Silver - Gold – Platinum
Synonyms None.
Document number WP7
Issue date 05-May-2015
Version number 02
Revision date 07-July-2015
Supersedes date 05-May-2015

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

Identified uses Not available.
Uses advised against None known.

1.3. Details of the supplier of the safety data sheet

Supplier

Company name Materion Advanced Materials Technologies and Services Inc.
Address 2978 Main Street
Buffalo, NY 14214
United States
Division Buffalo
Telephone 716-837-1000
e-mail Not available.
Contact person Not available.

1.4. Emergency telephone number 800-424-9300 Chemtrec

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Directive 67/548/EEC or 1999/45/EC as amended

Classification N;R50/53

Classification according to Regulation (EC) No 1272/2008 as amended

Environmental hazards

Hazardous to the aquatic environment, acute aquatic hazard Category 1 H400 - Very toxic to aquatic life.
Hazardous to the aquatic environment, long-term aquatic hazard Category 1 H410 - Very toxic to aquatic life with long lasting effects.

Hazard summary

Physical hazards Not classified for physical hazards.
Health hazards Not classified for health hazards.
Environmental hazards Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Specific hazards Not available.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains: Gold, Platinum, Silver
Hazard pictograms None.
Signal word Warning
Hazard statements
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

P273 Avoid release to the environment.

Response

P391 Collect spillage.

Storage

Not available.

Disposal

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Supplemental label information

74,76 % of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 74,76 % of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

2.3. Other hazards None known.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

General information

| Chemical name | % | CAS-No. / EC No. | REACH Registration No. | INDEX No. | Notes |
|------------------------|--|------------------------|------------------------|-----------|-------------|
| Platinum | 1 - < 50 | 7440-06-4 231-116-1 | - | - | # |
| Classification: | DSD: - | | | | |
| | CLP: - | | | | |
| Gold | 1 - < 25 | 7440-57-5 231-165-9 | - | - | |
| Classification: | DSD: - | | | | |
| | CLP: - | | | | |
| Silver | 1 - < 25 | 7440-22-4 231-131-3 | - | - | # M=1000 |
| Classification: | DSD: N;R50/53 | | | | |
| | CLP: Aquatic Acute 1;H400, Aquatic Chronic 1;H410 | | | | |

SECTION 4: First aid measures

General information Not available.

4.1. Description of first aid measures

Inhalation Not available.

Skin contact Not available.

Eye contact Not available.

Ingestion Not available.

4.2. Most important symptoms and effects, both acute and delayed Not available.

4.3. Indication of any immediate medical attention and special treatment needed Not available.

SECTION 5: Firefighting measures

General fire hazards Not available.

5.1. Extinguishing media

Suitable extinguishing media Not available.

Unsuitable extinguishing media Not available.

5.2. Special hazards arising from the substance or mixture Not available.

5.3. Advice for firefighters
Special protective equipment for firefighters Not available.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Not available.

For emergency responders Not available.

6.2. Environmental precautions Not available.

6.3. Methods and material for containment and cleaning up Not available.

6.4. Reference to other sections Not available.

SECTION 7: Handling and storage

7.1. Precautions for safe handling Not available.

7.2. Conditions for safe storage, including any incompatibilities Not available.

7.3. Specific end use(s) Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

| Components | Type | Value | Form |
|--------------------------|------|-----------------------|---------------------|
| Platinum (CAS 7440-06-4) | MAK | 1 mg/m ³ | Inhalable fraction. |
| Silver (CAS 7440-22-4) | MAK | 0,1 mg/m ³ | Inhalable fraction. |
| | STEL | 0,1 mg/m ³ | Inhalable fraction. |

Belgium. Exposure Limit Values.

| Components | Type | Value |
|--------------------------|------|-----------------------|
| Platinum (CAS 7440-06-4) | TWA | 1 mg/m ³ |
| Silver (CAS 7440-22-4) | TWA | 0,1 mg/m ³ |

Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

| Components | Type | Value |
|--------------------------|------|-----------------------|
| Platinum (CAS 7440-06-4) | TWA | 1 mg/m ³ |
| Silver (CAS 7440-22-4) | TWA | 0,1 mg/m ³ |

Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09

| Components | Type | Value |
|--------------------------|------|-----------------------|
| Platinum (CAS 7440-06-4) | MAC | 1 mg/m ³ |
| Silver (CAS 7440-22-4) | MAC | 0,1 mg/m ³ |

Czech Republic. OELs. Government Decree 361

| Components | Type | Value |
|--------------------------|---------|-----------------------|
| Platinum (CAS 7440-06-4) | Ceiling | 1 mg/m ³ |
| | TWA | 0,5 mg/m ³ |
| Silver (CAS 7440-22-4) | Ceiling | 0,3 mg/m ³ |
| | TWA | 0,1 mg/m ³ |

Denmark. Exposure Limit Values

| Components | Type | Value | Form |
|--------------------------|------|---------------------|-------|
| Platinum (CAS 7440-06-4) | TLV | 1 mg/m ³ | Dust. |

Denmark. Exposure Limit Values Components

| Components | Type | Value | Form |
|------------------------|------|------------------------|-------|
| Silver (CAS 7440-22-4) | TLV | 0,01 mg/m ³ | Dust. |

Estonia. OELs. Occupational Exposure Limits of Hazardous Substances. (Annex of Regulation No. 293 of 18 September 2001)

| Components | Type | Value |
|--------------------------|------|-----------------------|
| Platinum (CAS 7440-06-4) | TWA | 1 mg/m ³ |
| Silver (CAS 7440-22-4) | TWA | 0,1 mg/m ³ |

Finland. Workplace Exposure Limits Components

| Components | Type | Value |
|--------------------------|------|-----------------------|
| Platinum (CAS 7440-06-4) | TWA | 1 mg/m ³ |
| Silver (CAS 7440-22-4) | TWA | 0,1 mg/m ³ |

France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984

| Components | Type | Value |
|--------------------------|------|-----------------------|
| Platinum (CAS 7440-06-4) | VME | 1 mg/m ³ |
| Silver (CAS 7440-22-4) | VME | 0,1 mg/m ³ |

Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)

| Components | Type | Value | Form |
|------------------------|------|-----------------------|---------------------|
| Silver (CAS 7440-22-4) | TWA | 0,1 mg/m ³ | Inhalable fraction. |

Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace Components

| Components | Type | Value | Form |
|--------------------------|------|-----------------------|---------------------|
| Platinum (CAS 7440-06-4) | AGW | 1 mg/m ³ | Inhalable fraction. |
| Silver (CAS 7440-22-4) | AGW | 0,1 mg/m ³ | Inhalable fraction. |

Greece. OELs (Decree No. 90/1999, as amended)

| Components | Type | Value |
|--------------------------|------|-----------------------|
| Platinum (CAS 7440-06-4) | TWA | 5 mg/m ³ |
| Silver (CAS 7440-22-4) | TWA | 0,1 mg/m ³ |

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces

| Components | Type | Value |
|--------------------------|------|-----------------------|
| Platinum (CAS 7440-06-4) | TWA | 1 mg/m ³ |
| Silver (CAS 7440-22-4) | STEL | 0,4 mg/m ³ |
| | TWA | 0,1 mg/m ³ |

Iceland. OELs. Regulation 154/1999 on occupational exposure limits

| Components | Type | Value | Form |
|--------------------------|------|------------------------|-------|
| Platinum (CAS 7440-06-4) | TWA | 1 mg/m ³ | Dust. |
| Silver (CAS 7440-22-4) | TWA | 0,01 mg/m ³ | Dust. |

Ireland. Occupational Exposure Limits

| Components | Type | Value |
|--------------------------|------|-----------------------|
| Platinum (CAS 7440-06-4) | TWA | 1 mg/m ³ |
| Silver (CAS 7440-22-4) | TWA | 0,1 mg/m ³ |

Italy. Occupational Exposure Limits

| Components | Type | Value |
|--------------------------|------|-----------------------|
| Platinum (CAS 7440-06-4) | TWA | 1 mg/m ³ |
| Silver (CAS 7440-22-4) | TWA | 0,1 mg/m ³ |

Latvia. OELs. Occupational exposure limit values of chemical substances in work environment

| Components | Type | Value |
|--------------------------|------|-----------------------|
| Platinum (CAS 7440-06-4) | TWA | 1 mg/m ³ |
| Silver (CAS 7440-22-4) | TWA | 0,1 mg/m ³ |

Lithuania. OELs. Limit Values for Chemical Substances, General Requirements

| Components | Type | Value |
|--------------------------|------|-----------------------|
| Platinum (CAS 7440-06-4) | TWA | 1 mg/m ³ |
| Silver (CAS 7440-22-4) | TWA | 0,1 mg/m ³ |

Luxembourg. Binding Occupational exposure limit values (Annex I), Memorial A

| Components | Type | Value |
|--------------------------|------|---------------------|
| Platinum (CAS 7440-06-4) | TWA | 1 mg/m ³ |

Malta. OELs. Occupational Exposure Limit Values (L.N. 227. of Occupational Health and Safety Authority Act (CAP. 424), Schedules I and V)

| Components | Type | Value |
|--------------------------|------|-----------------------|
| Platinum (CAS 7440-06-4) | TWA | 1 mg/m ³ |
| Silver (CAS 7440-22-4) | TWA | 0,1 mg/m ³ |

Netherlands. OELs (binding)

| Components | Type | Value |
|--------------------------|------|-----------------------|
| Platinum (CAS 7440-06-4) | TWA | 1 mg/m ³ |
| Silver (CAS 7440-22-4) | TWA | 0,1 mg/m ³ |

Norway. Administrative Norms for Contaminants in the Workplace

| Components | Type | Value | Form |
|------------------------|------|-----------------------|----------------|
| Silver (CAS 7440-22-4) | TLV | 0,1 mg/m ³ | Dust and fume. |

Poland. MACs. Minister of Labour and Social Policy Regarding Maximum Allowable Concentrations and Intensities in Working Environment

| Components | Type | Value | Form |
|--------------------------|------|------------------------|---------------------|
| Platinum (CAS 7440-06-4) | TWA | 1 mg/m ³ | |
| Silver (CAS 7440-22-4) | TWA | 0,05 mg/m ³ | Inhalable fraction. |

Portugal. OELs. Decree-Law n. 290/2001 (Journal of the Republic - 1 Series A, n.266)

| Components | Type | Value |
|--------------------------|------|---------------------|
| Platinum (CAS 7440-06-4) | TWA | 1 mg/m ³ |

Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)

| Components | Type | Value |
|--------------------------|------|-----------------------|
| Platinum (CAS 7440-06-4) | TWA | 1 mg/m ³ |
| Silver (CAS 7440-22-4) | TWA | 0,1 mg/m ³ |

Romania. OELs. Protection of workers from exposure to chemical agents at the workplace

| Components | Type | Value |
|------------------------|------|-----------------------|
| Silver (CAS 7440-22-4) | TWA | 0,1 mg/m ³ |

Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents

| Components | Type | Value |
|--------------------------|------|-----------------------|
| Platinum (CAS 7440-06-4) | TWA | 1 mg/m ³ |
| Silver (CAS 7440-22-4) | TWA | 0,1 mg/m ³ |

Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)

| Components | Type | Value |
|--------------------------|------|------------------------|
| Platinum (CAS 7440-06-4) | TWA | 1 mg/m ³ |
| Silver (CAS 7440-22-4) | TWA | 0,01 mg/m ³ |

Spain. Occupational Exposure Limits

| Components | Type | Value |
|--------------------------|------|-----------------------|
| Platinum (CAS 7440-06-4) | TWA | 1 mg/m ³ |
| Silver (CAS 7440-22-4) | TWA | 0,1 mg/m ³ |

Sweden. Occupational Exposure Limit Values

| Components | Type | Value | Form |
|--------------------------|------|-----------------------|-------------|
| Platinum (CAS 7440-06-4) | TWA | 1 mg/m ³ | Total dust. |
| Silver (CAS 7440-22-4) | TWA | 0,1 mg/m ³ | Total dust. |

Switzerland. SUVA Grenzwerte am Arbeitsplatz

| Components | Type | Value | Form |
|--------------------------|------|-----------------------|-----------------|
| Platinum (CAS 7440-06-4) | TWA | 1 mg/m ³ | Inhalable dust. |
| Silver (CAS 7440-22-4) | STEL | 0,8 mg/m ³ | Inhalable dust. |
| | TWA | 0,1 mg/m ³ | Inhalable dust. |

UK. EH40 Workplace Exposure Limits (WELs)

| Components | Type | Value |
|--------------------------|------|---------------------|
| Platinum (CAS 7440-06-4) | TWA | 5 mg/m ³ |

UK. EH40 Workplace Exposure Limits (WELs)

| Components | Type | Value |
|------------------------|------|-----------------------|
| Silver (CAS 7440-22-4) | TWA | 0,1 mg/m ³ |

EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU

| Components | Type | Value |
|--------------------------|------|-----------------------|
| Platinum (CAS 7440-06-4) | TWA | 1 mg/m ³ |
| Silver (CAS 7440-22-4) | TWA | 0,1 mg/m ³ |

Biological limit values No biological exposure limits noted for the ingredient(s).**Recommended monitoring procedures** Not available.**Derived no-effect level (DNEL)** Not available.**Predicted no effect concentrations (PNECs)** Not available.**8.2. Exposure controls****Appropriate engineering controls** Not available.**Individual protection measures, such as personal protective equipment****Eye/face protection** Not available.**Skin protection****- Hand protection** Not available.**- Other** Not available.**Respiratory protection** Not available.**Thermal hazards** Not available.**Hygiene measures** Not available.**Environmental exposure controls** Not available.**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties****Appearance****Physical state** Solid.**Form** Not available.**Colour** Not available.**Odour** Not applicable.**Odour threshold** Not available.**pH** Not available.**Melting point/freezing point** 960,5 °C (1760,9 °F) estimated**Initial boiling point and boiling range** 2000 °C (3632 °F) estimated**Flash point** Not available.**Evaporation rate** Not available.**Flammability (solid, gas)** Not applicable.**Upper/lower flammability or explosive limits****Flammability limit - lower (%)** Not available.**Flammability limit - upper (%)** Not available.**Vapour pressure** 0,00001 hPa estimated**Vapour density** Not available.**Relative density** Not available.**Solubility(ies)****Solubility (water)** Not available.**Solubility (other)** Not available.**Partition coefficient (n-octanol/water)** Not available.

| | |
|----------------------------------|-----------------------------------|
| Auto-ignition temperature | Not available. |
| Decomposition temperature | Not available. |
| Viscosity | Not available. |
| Explosive properties | Not available. |
| Oxidizing properties | Not available. |
| 9.2. Other information | |
| Density | 18,14 g/cm ³ estimated |
| Specific gravity | 18,14 estimated |

SECTION 10: Stability and reactivity

| | |
|---|----------------|
| 10.1. Reactivity | Not available. |
| 10.2. Chemical stability | Not available. |
| 10.3. Possibility of hazardous reactions | Not available. |
| 10.4. Conditions to avoid | Not available. |
| 10.5. Incompatible materials | Not available. |
| 10.6. Hazardous decomposition products | Not available. |

SECTION 11: Toxicological information

| | |
|---|----------------|
| General information | Not available. |
| Information on likely routes of exposure | |
| Inhalation | Not available. |
| Skin contact | Not available. |
| Eye contact | Not available. |
| Ingestion | Not available. |
| Symptoms | Not available. |

11.1. Information on toxicological effects

| Components | Species | Test results |
|---|----------------|--------------|
| Silver (CAS 7440-22-4) | | |
| Acute | | |
| Dermal | | |
| LD50 | Rat | > 2000 mg/kg |
| Oral | | |
| LD50 | Rat | > 5000 mg/kg |
| Skin corrosion/irritation | Not available. | |
| Serious eye damage/eye irritation | Not available. | |
| Respiratory sensitisation | Not available. | |
| Skin sensitisation | Not available. | |
| Germ cell mutagenicity | Not available. | |
| Carcinogenicity | Not available. | |
| Reproductive toxicity | Not available. | |
| Specific target organ toxicity - single exposure | Not available. | |
| Specific target organ toxicity - repeated exposure | Not available. | |
| Aspiration hazard | Not available. | |
| Mixture versus substance information | Not available. | |
| Other information | Not available. | |

SECTION 12: Ecological information

12.1. Toxicity

| Components | Species | Test results |
|--|---|---|
| Silver (CAS 7440-22-4) | | |
| Aquatic | | |
| Crustacea | EC50 | Water flea (Daphnia magna) 0,0002 mg/l, 48 hours |
| Fish | LC50 | Fathead minnow (Pimephales promelas) 0,0023 - 0,0033 mg/l, 96 hours |
| 12.2. Persistence and degradability | Not available. | |
| 12.3. Bioaccumulative potential | Not available. | |
| Partition coefficient n-octanol/water (log Kow) | Not available. | |
| Bioconcentration factor (BCF) | Not available. | |
| 12.4. Mobility in soil | Not available. | |
| 12.5. Results of PBT and vPvB assessment | Not a PBT or vPvB substance or mixture. | |
| 12.6. Other adverse effects | Not available. | |

SECTION 13: Disposal considerations

13.1. Waste treatment methods

| | |
|-------------------------------|----------------|
| Residual waste | Not available. |
| Contaminated packaging | Not available. |
| EU waste code | Not available. |

SECTION 14: Transport information

ADR

| | |
|---|--|
| 14.1. UN number | UN3077 |
| 14.2. UN proper shipping name | Environmentally hazardous substance, solid, n.o.s. |
| 14.3. Transport hazard class(es) | |
| Class | 9 |
| Subsidiary risk | - |
| Label(s) | 9 |
| Hazard No. (ADR) | 90 |
| Tunnel restriction code | E |
| 14.4. Packing group | III |
| 14.5. Environmental hazards | Yes |
| 14.6. Special precautions for user | Not available. |

RID

| | |
|---|--|
| 14.1. UN number | UN3077 |
| 14.2. UN proper shipping name | Environmentally hazardous substance, solid, n.o.s. |
| 14.3. Transport hazard class(es) | |
| Class | 9 |
| Subsidiary risk | - |
| Label(s) | 9 |
| 14.4. Packing group | III |
| 14.5. Environmental hazards | Yes |
| 14.6. Special precautions for user | Not available. |

ADN

| | |
|---|---|
| 14.1. UN number | UN3077 |
| 14.2. UN proper shipping name | Environmentally Hazardous Solid, N.o.s. |
| 14.3. Transport hazard class(es) | |
| Class | 9 |
| Subsidiary risk | - |
| Label(s) | 9 |

| | |
|---|----------------|
| 14.4. Packing group | III |
| 14.5. Environmental hazards | Yes |
| 14.6. Special precautions for user | Not available. |

IATA

| | |
|---|--|
| 14.1. UN number | UN3077 |
| 14.2. UN proper shipping name | Environmentally hazardous substance, solid, n.o.s. |
| 14.3. Transport hazard class(es) | |
| Class | 9 |
| Subsidiary risk | - |
| 14.4. Packing group | III |
| 14.5. Environmental hazards | Yes |
| ERG Code | 9L |
| 14.6. Special precautions for user | Not available. |
| Other information | |
| Passenger and cargo aircraft | Allowed. |
| Cargo aircraft only | Allowed. |

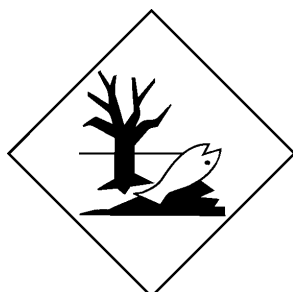
IMDG

| | |
|---|--|
| 14.1. UN number | UN3077 |
| 14.2. UN proper shipping name | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. |
| 14.3. Transport hazard class(es) | |
| Class | 9 |
| Subsidiary risk | - |
| 14.4. Packing group | III |
| 14.5. Environmental hazards | |
| Marine pollutant | Yes |
| EmS | F-A, S-F |
| 14.6. Special precautions for user | Not available. |

ADN; ADR; IATA; IMDG; RID



Marine pollutant



SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I, as amended

Not listed.

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex II, as amended

Not listed.

Regulation (EC) No. 850/2004 on persistent organic pollutants, Annex I

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex V

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use

Not regulated.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended

Not listed.

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding, as amended

Not listed.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances

Not listed.

Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work, as amended

Not listed.

Directive 94/33/EC on the protection of young people at work, as amended

Not listed.

National regulations

Not available.

15.2. Chemical safety assessment

Not available.

SECTION 16: Other information

List of abbreviations

Not available.

References

Not available.

Information on evaluation method leading to the classification of mixture

Not available.

Full text of any statements or R-phrases and H-statements under Sections 2 to 15

R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

Revision information

None.

Training information

Not available.