

Safety data sheet

according to 1907/2006/EC, Article 31

Date Printed 17.11.2016

Revision Date 17.11.2016

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

- **1.1 Product identifier** Silver Paint Diluent (100ml)
- **Trade name:** **4-methylpentan-2-one**
- **Article number:** AGR1272
- **CAS Number:**
108-10-1
- **EC number:**
203-550-1
- **Index number:**
606-004-00-4
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the preparation:** Organic solvent diluent, used in microscopy.
- **1.3 Details of the supplier of the safety data sheet**
- **Supplier.**
Agar Scientific Ltd
Parsonage Lane
Stansted CM24 8GF
United Kingdom
sales@agarscientific.com
Tel: +44 (0) 1279 813 519



- **Further information obtainable from:** Technical Support
- **1.4 Emergency telephone number:** 24 hours: +44 (0)1856 407333

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS02 flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.



GHS07

Acute Tox. 4 H332 Harmful if inhaled.
 Eye Irrit. 2 H319 Causes serious eye irritation.
 STOT SE 3 H335 May cause respiratory irritation.

- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



Xn; Harmful

R20: Harmful by inhalation.



Xi; Irritant

R36/37: Irritating to eyes and respiratory system.

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F+; Highly flammable

R11: Highly flammable.

R66: Repeated exposure may cause skin dryness or cracking.

- **Information concerning particular hazards for human and environment:**

At long or repeated contact with skin it may cause dermatitis due to the degreasing effect of the solvent.

- **2.2 Label elements**

- **Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labelled according to the CLP regulation.

- **Hazard pictograms**



GHS02 GHS07

- **Signal word** Danger

- **Hazard statements**

H225 Highly flammable liquid and vapour.

H332 Harmful if inhaled.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

- **Precautionary statements**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P241 Use explosion-proof electrical/ventilating/lighting equipment.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 Store locked up.

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

- **Additional information:**

EUH066 Repeated exposure may cause skin dryness or cracking.

- **2.3 Other hazards**

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

- **3.1 Chemical characterisation: Substances**

- **CAS No. Description**

108-10-1 4-methylpentan-2-one

- **Identification number(s)**

- **EC number:** 203-550-1

- **Index number:** 606-004-00-4

SECTION 4: First aid measures

- **4.1 Description of first aid measures** First aider: Pay attention to self-protection!

- **General information:**

IF exposed or if you feel unwell: Call a POISON CENTRE or doctor/physician. If unconscious place in recovery position and seek medical advice. Never give anything by mouth to an unconscious

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person or a person with cramps. Change contaminated, saturated clothing. Do not leave affected person unattended.

• **After inhalation:**

Call a POISON CENTRE/doctor/.... Remove casualty to fresh air and keep warm and at rest. If breathing is irregular or stopped, administer artificial respiration.

• **After skin contact:**

After contact with skin, wash immediately with plenty of water and soap. Remove contaminated, saturated clothing immediately. In case of skin reactions, consult a physician.

• **After eye contact:**

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Protect uninjured eye. Remove contact lenses, if present and easy to do. Continue rinsing.

• **After swallowing:**

If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention. Do NOT induce vomiting. Give nothing to eat or drink.

• **4.2 Most important symptoms and effects, both acute and delayed**

No further relevant information available.

• **4.3 Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

SECTION 5: Firefighting measures

• **5.1 Extinguishing media**

• **Suitable extinguishing agents:** Water spray, ABC-powder, Carbon dioxide (CO₂), Nitrogen (N₂).

• **5.2 Special hazards arising from the substance or mixture**

In case of fire may be liberated: Carbon dioxide (CO₂), Carbon monoxide (CO).

• **5.3 Advice for firefighters** DO NOT fight fire when fire reaches explosives.

• **Protective equipment:** Positive pressure self-contained breathing apparatus.

• **Additional information**

Do not allow run-off from fire-fighting to enter drains or water courses. Do not inhale explosion and combustion gases. Use caution when applying carbon dioxide in confined spaces. Carbon dioxide can displace oxygen. Use water spray jet to protect personnel and to cool endangered containers.

SECTION 6: Accidental release measures

• **6.1 Personal precautions, protective equipment and emergency procedures**

Wear protective gloves and glasses.

Special danger of slipping by leaking/spilling product. In case of major fire and large quantities: Remove persons to safety. Wear a self-contained breathing apparatus and chemical protective clothing.

• **6.2 Environmental precautions:**

Do not allow product to reach sewage system or any water course.

Do not allow to enter sewers/ surface or ground water.

Do not allow to enter into soil/subsoil.

• **6.3 Methods and material for containment and cleaning up:**

Spilled product must never be returned to the original container for recycling. Take up carefully when dry. Take up dust-free and set down dust-free. Clean contaminated objects and areas thoroughly observing environmental regulations.

Clear spills immediately.

• **6.4 Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

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SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
 Ensure good ventilation/exhaustion at the workplace.
 Avoid: Inhalation Avoid contact with skin and eyes. Use extractor hood (laboratory). If handled uncovered, arrangements with local exhaust ventilation have to be used. If local exhaust ventilation is not possible or not sufficient, the entire working area must be ventilated by technical means.
 Handle under (Gas): Nitrogen.
- **7.2 Conditions for safe storage, including any incompatibilities**
 Storage class: 3
 Keep container tightly closed in a cool, well-ventilated place.
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Storage temperature: 15-25 °C
- **Information about storage in one common storage facility:**
 Keep/Store away from combustible materials.
- **Further information about storage conditions:**
 Keep container tightly sealed.
 Store in cool, dry conditions in well sealed receptacles.
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.
- **8.1 Control parameters**

Ingredients with limit values that require monitoring at the workplace:	
108-10-1 4-methylpentan-2-one	
TWA (EU)	20ppm, 83 mg/m ³
STEL (EU)	50ppm, 208mg/m ³

Ingredients with biological limit values:	
108-10-1 4-methylpentan-2-one	
BMGV	20 µmol/L
	Medium: urine
	Sampling time: post shift
	Parameter: 4-methylpentan-2-one

- **Additional information:** The lists valid during the making were used as basis.
- **8.2 Exposure controls**
 Technical measures and the application of suitable work processes have priority over personal protection equipment. If handled uncovered, arrangements with local exhaust ventilation have to be used.
- **Personal protective equipment:**
- **General protective and hygienic measures:**
 Wear suitable protective clothing. When handling with chemical substances, protective clothing with CE-labels including the four control digits must be worn. For the protection against direct skin contact, body protective clothing is essential (in addition to the usual working clothes).
- **Respiratory protection:**
 Respiratory protection necessary at: aerosol or mist formation.
 Suitable respiratory protection apparatus: Full-/half-/quarter-face masks (DIN EN 136/140)
 Recommendation: VWR 111-0206
 Suitable material: A2B2E2K2P3
 Recommendation: VWR 111-0059
- **Protection of hands:**
 The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

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Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. Recommended glove articles DIN-/EN-Norms: DIN EN 374. In the case of wanting to use the gloves again, clean them before taking off and air them well.

- **Material of gloves**

By short-term hand contact

Suitable material: NBR (Nitrile rubber)

Thickness of the glove material: 0,425 mm

Breakthrough time (maximum wearing time): 37 min

Recommended glove articles: VWR 112-0971.

By long-term hand contact

Suitable material: Butyl caoutchouc (butyl rubber)

Thickness of the glove material: 0,50 mm

Breakthrough time (maximum wearing time): 240-480 min

Recommended glove articles: VWR 112-1570.

- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**



Tightly sealed goggles

Eye glasses with side protection DIN-/EN-Norms: DIN EN 166

Recommendation: VWR 111-0432

- **Body protection:**

Wash hands before breaks and after work. Avoid contact with skin and eyes. When using do not eat, drink or smoke. Provide eye shower and label its location conspicuously.

SECTION 9: Physical and chemical properties

- **9.1 Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

Form:	Liquid
Colour:	Colourless
Odour:	Characteristic
Odour threshold:	Not determined.

- **pH-value:** Not determined.

- **Change in condition**

Melting point/Melting range:	-84 °C
Boiling point/Boiling range:	117.4 °C

- **Flash point:** 16 °C

- **Flammability (solid, gaseous):** Highly flammable liquid and vapour.

- **Ignition temperature:** 460 °C

- **Decomposition temperature:** Not determined.

- **Self-igniting:** Not determined.

- **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

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· Explosion limits:	
Lower:	1.4 Vol %
Upper:	8 Vol %
· Vapour pressure at 20 °C:	21 hPa
· Density at 20 °C:	0.801 g/cm ³
· Relative density	Not determined.
· Vapour density at 20 °C	3.45 (air=1)
· Evaporation rate	Not determined.
· Solubility in / Miscibility with water at 20 °C:	18 to 20 g/l
· Partition coefficient (n-octanol/water) at 20 °C:	1.31 log POW
· Viscosity:	
Dynamic at 20 °C:	0.59 mPas
Kinematic:	Not determined.
· 9.2 Other information	Refraction index 1.396 (589nm, 20°C)

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No data available
- **10.2 Chemical stability** No data available
- **Thermal decomposition / conditions to be avoided:** No data available
- **10.3 Possibility of hazardous reactions** No data available
- **10.4 Conditions to avoid** No data available
- **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

- **Acute toxicity**
Harmful if inhaled.

· LD/LC50 values relevant for classification:

Oral	LD50	2080 mg/kg (rat)
Dermal	LD50	16000 mg/kg (rab)
Inhalative	LC50/4 h	8.3-16.6 mg/l (rat)

- **Skin corrosion/irritation** Causes skin irritation.
- **Serious eye damage/irritation**
Causes serious eye irritation.
Causes serious eye irritation.
- **Respiratory or skin sensitisation**
In case of skin contact: not sensitising.
After inhalation: not sensitising.
- **Other information (about experimental toxicology):**
Carcinogenicity: No indication of human carcinogenicity.
Germ cell mutagenicity: No indications of human germ cell mutagenicity exist.
Reproductive toxicity: No indications of human reproductive toxicity exist.
- **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.

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- **STOT-single exposure**
May cause respiratory irritation.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.


SECTION 12: Ecological information

- **12.1 Toxicity** No data available.
- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** Partition coefficient: n-octanol/water: 1.31
- **12.4 Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
Dispose according to local legislation. Consult the appropriate local waste disposal expert about waste disposal. Send to a hazardous waste incinerator facility under observation of official regulations.
- **Recommendation:**
Disposal must be made according to official regulations.
Dispose according to local legislation. Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

- | | |
|---|-----------------------------|
| · 14.1 UN-Number | |
| · ADR, IMDG, IATA | UN1245 |
| · 14.2 UN proper shipping name | |
| · ADR | 1245 METHYL ISOBUTYL KETONE |
| · IMDG, IATA | METHYL ISOBUTYL KETONE |
| · 14.3 Transport hazard class(es) | |
| · ADR, IMDG, IATA | |
|  | |
| · Class | 3 Flammable liquids. |
| · Label | 3 |

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<ul style="list-style-type: none"> · 14.4 Packing group · ADR, IMDG, IATA 	II
<ul style="list-style-type: none"> · 14.5 Environmental hazards: 	Not applicable.
<ul style="list-style-type: none"> · 14.6 Special precautions for user · Danger code (Kemler): · EMS Number: 	Warning: Flammable liquids. 33 F-E,S-D
<ul style="list-style-type: none"> · 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code 	Not applicable.
<ul style="list-style-type: none"> · Transport/Additional information: 	
<ul style="list-style-type: none"> · ADR · Limited quantities (LQ) · Transport category · Tunnel restriction code 	
<ul style="list-style-type: none"> · UN "Model Regulation": 	UN1245, METHYL ISOBUTYL KETONE, 3, II

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
 Water hazard class (WGK): slightly hazardous to water (WGK 1)
 EU: 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), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (Text with EEA relevance)
 EU: 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 (Text with EEA relevance)
 EU: 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) (Text with EEA relevance)
- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3, 40
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge and should assist the user with the safe handling of this material when properly applied. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:** Sales department
- **Contact:**
 sales@agarscientific.com
 Tel: +44 (0) 1279 813 519
- **Abbreviations and acronyms:**
 ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
 IMDG: International Maritime Code for Dangerous Goods
 IATA: International Air Transport Association
 GHS: Globally Harmonised System of Classification and Labelling of Chemicals
 EINECS: European Inventory of Existing Commercial Chemical Substances
 CAS: Chemical Abstracts Service (division of the American Chemical Society)
 LC50: Lethal concentration, 50 percent

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LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 2: Flammable liquids – Category 2
Acute Tox. 4: Acute toxicity – Category 4
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

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