



Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 12.12.2021

Version number 1.1 (replaces version 1.0)

Revision: 12.12.2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**· Trade name: AR 600-548

· Article number: AR 600-548

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

No further relevant information available.

Application of the substance / the mixture

Intermediate product for the electronics industry. For industrial and commercial use only.

1.3 Details of the supplier of the safety data sheet**Manufacturer/Supplier:**

Allresist GmbH
Am Biotop 14
15344 Strausberg
GERMANY

E-Mail: info@allresist.de

Tel.: +49 3341 35 93 0

Further information obtainable from: Sales**1.4 Emergency telephone number:**

Poison center of the Charité Berlin:

+4930 30686700

E-Mail: giftnotruf@charite.de**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****Classification according to Regulation (EC) No 1272/2008**

flame

Flam. Liq. 2 H225

Highly flammable liquid and vapour.



Eye Irrit. 2 H319

Causes serious eye irritation.

STOT SE 3 H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.

2.2 Label elements**Labelling according to Regulation (EC) No 1272/2008**

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

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· Hazard pictograms



GHS02 GHS07

· Signal word Danger

· Hazard-determining components of labelling:

pentan-3-one

· Hazard statements

H225 Highly flammable liquid and vapour.

H319 Causes serious eye irritation.

H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.

· Precautionary statements

P101 If medical advice is needed, have product container or label at hand.

P102 Keep out of reach of children.

P103 Read carefully and follow all instructions.

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

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

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

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

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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.

· 2.3 Other hazards

· Results of PBT and vPvB assessment

· PBT: Not applicable.

· vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

· 3.2 Mixtures

· **Description:** Mixture of substances listed below with nonhazardous additions.

· Dangerous components:

CAS: 96-22-0 EINECS: 202-490-3	pentan-3-one ⚠ Flam. Liq. 2, H225; ⚠ Eye Irrit. 2, H319; STOT SE 3, H335-H336, EUH066	25-50%
CAS: 105-53-3 EINECS: 203-305-9	diethyl malonate ⚠ Eye Irrit. 2, H319	25-50%

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

· 4.1 Description of first aid measures

· **General information:** Immediately remove any clothing soiled by the product.· **After skin contact:** Immediately rinse with water.

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- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** If symptoms persist consult doctor.
- **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:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **5.2 Special hazards arising from the substance or mixture** No further relevant information available.
- **5.3 Advice for firefighters**
- **Protective equipment:** No special measures required.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **6.2 Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **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.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Information about fire - and explosion protection:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
- **Recommended storage temperature:** 10-18°C
- **Storage class (TRGS):** 3
- **7.3 Specific end use(s)** No further relevant information available.

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SECTION 8: Exposure controls/personal protection

· 8.1 Control parameters

· **Ingredients with limit values that require monitoring at the workplace:**

96-22-0 pentan-3-one

WEL	Short-term value: 895 mg/m ³ , 250 ppm
	Long-term value: 716 mg/m ³ , 200 ppm

· **DNELs**

96-22-0 pentan-3-one

Dermal	DNEL Long-term – dermal, systemic effects	101 mg/kg_bw/day (Worker)
Inhalative	DNEL long-term - inhalation local effects	705 mg/m ³ (Worker)
	DNEL Long-term – inhalation, systemic effects	708 mg/m ³ /day (Worker)
	DNEL Acute - inhalation, local effects	1,057 mg/m ³ (Worker)

105-53-3 diethyl malonate

Dermal	DNEL Long-term – dermal, systemic effects	1.213 mg/kg_bw/day (Worker)
		0.607 mg/kg_bw/day (general public)
Inhalative	DNEL Long-term – inhalation, systemic effects	8.468 mg/m ³ /day (Worker)
		2.106 mg/m ³ /day (general public)

· **PNECs**

96-22-0 pentan-3-one

PNEC short term, fresh water	0.5 mg/l (Aquatic organisms)
PNEC short term, sea water	0.05 mg/l (Aquatic organisms)
PNEC short term, sewage plant	6.287 mg/l (Aquatic organisms)
PNEC short term fresh water sediment	2.17 mg/kg (Aquatic organisms)
PNEC short term soil	0.207 mg/kg (terrestrial organisms)
PNEC short term, intermittent releases	5 mg/l (Aquatic organisms)

105-53-3 diethyl malonate

PNEC Predicted No Effect Concentration, Freshwater	0.0118 mg/ltr (Aquatic organisms)
PNEC short term, sea water	0.00118 mg/l (Aquatic organisms)
PNEC short term, sewage plant	0.108 mg/l (Aquatic organisms)
PNEC short term fresh water sediment	4.62 mg/kg (Aquatic organisms)
PNEC short term soil	0.008557 mg/kg (terrestrial organisms)
PNEC short term sea water sediment	0.924 mg/kg (Aquatic organisms)

· **Additional information:** The lists valid during the making were used as basis.

· 8.2 Exposure controls

· **Appropriate engineering controls** No further data; see item 7.

· **Individual protection measures, such as personal protective equipment**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

· **Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

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· Hand protection



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

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

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· 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/face protection



Tightly sealed goggles

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· General Information

· Physical state

Fluid

· Colour:

Colourless

· Odour:

Like ketone

· Odour threshold:

Not determined.

· Melting point/freezing point:

-66 °C

· Boiling point or initial boiling point and boiling range

101.5 °C (96-22-0 pentan-3-one)

· Flammability

Not applicable.

· Lower and upper explosion limit

· Lower:

1.5 Vol %

· Upper:

13 Vol %

· Flash point:

18 °C (96-22-0 pentan-3-one)

· Auto-ignition temperature:

Product is not selfigniting.

· Decomposition temperature:

Not determined.

· pH

Mixture is non-soluble (in water).

· Viscosity:

· Kinematic viscosity at 20 °C

1.23 mm²/s

· Dynamic:

Not determined.

· Solubility

· water:

Fully miscible.

· Partition coefficient n-octanol/water (log value)

Not determined.

· Vapour pressure at 20 °C:

16 hPa (96-22-0 pentan-3-one)

· Density and/or relative density

· Density at 20 °C:

0.9325 g/cm³

· Relative density

Not determined.

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· Bulk density:	933 kg/m ³
· Vapour density	Not determined.
· 9.2 Other information	
· Appearance:	
· Form:	Fluid
· Important information on protection of health and environment, and on safety.	
· Ignition temperature:	315 °C
· Explosive properties:	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· Solvent content:	
· Organic solvents:	50.0 %
· VOC (EC)	50.00 %
· Solids content:	0.0 %
· Change in condition	
· Evaporation rate	Not determined.
· Information with regard to physical hazard classes	
· Explosives	Void
· Flammable gases	Void
· Aerosols	Void
· Oxidising gases	Void
· Gases under pressure	Void
· Flammable liquids	Highly flammable liquid and vapour.
· Flammable solids	Void
· Self-reactive substances and mixtures	Void
· Pyrophoric liquids	Void
· Pyrophoric solids	Void
· Self-heating substances and mixtures	Void
· Substances and mixtures, which emit flammable gases in contact with water	Void
· Oxidising liquids	Void
· Oxidising solids	Void
· Organic peroxides	Void
· Corrosive to metals	Void
· Desensitised explosives	Void

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

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SECTION 11: Toxicological information

· 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

· Acute toxicity

· LD/LC50 values relevant for classification:

Oral	Acute Toxicity Estimate of ingredient (ATE) oral	>5,000 mg/kg (Worker)
Dermal	Schätzwerte akuter Toxizität	>2,000 mg/kg (Worker)
Inhalative	Acute toxicity Estimate inhalative (4h)	>20 mg/l (Worker)

96-22-0 pentan-3-one

Oral	LD50	2,140 mg/kg (rat)
Dermal	LD50	20,000 mg/kg (rabbit)

105-53-3 diethyl malonate

Oral	LD50	15,794 mg/kg (rat)
Dermal	LD50	>16,960 mg/kg (rabbit)

· **Serious eye damage/irritation** Causes serious eye irritation.

· **STOT-single exposure** May cause respiratory irritation. May cause drowsiness or dizziness.

· 11.2 Information on other hazards

· Endocrine disrupting properties

None of the ingredients is listed.

SECTION 12: Ecological information

· 12.1 Toxicity

· Aquatic toxicity:

96-22-0 pentan-3-one

LC50 (96h) mg/ltr.	1,540 mg/ltr (Fish)
EC50 (48h)	>500 mg/l (Invertebrates)
ErC (72h)	>500 mg/l (algae)

105-53-3 diethyl malonate

LC50 (96h) mg/ltr.	11.8 mg/ltr (Fish)
EC50 (48h)	202.3 mg/l (daphnia)

· 12.2 Persistence and degradability

105-53-3	diethyl malonate	99 %
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· 12.3 Bioaccumulative potential

96-22-0	pentan-3-one	0,85
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· **12.4 Mobility in soil** No further relevant information available.

· 12.5 Results of PBT and vPvB assessment

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

· 12.6 Endocrine disrupting properties

The product does not contain substances with endocrine disrupting properties.

· **12.7 Other adverse effects** No further relevant information available.

· Additional ecological information:

· General notes:

Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water

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Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

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.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

SECTION 14: Transport information

- | | |
|---|---|
| · 14.1 UN number or ID number
· ADR, IMDG, IATA | UNI993 |
| · 14.2 UN proper shipping name
· ADR
· IMDG, IATA | 1993 FLAMMABLE LIQUID, N.O.S. (DIETHYL KETONE)
FLAMMABLE LIQUID, N.O.S. (DIETHYL KETONE) |
| · 14.3 Transport hazard class(es)
· ADR, IMDG, IATA |  |
| · Class
· Label | 3 Flammable liquids.
3 |
| · 14.4 Packing group
· ADR, IMDG, IATA | II |
| · 14.5 Environmental hazards: | Not applicable. |
| · 14.6 Special precautions for user
· Hazard identification number (Kemler code):
· EMS Number:
· Stowage Category | Warning: Flammable liquids.
33
F-E,S-D
B |
| · 14.7 Maritime transport in bulk according to IMO instruments | Not applicable. |
| · Transport/Additional information: | |
| · ADR
· Limited quantities (LQ)
· Excepted quantities (EQ) | 1L
Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml |
| · Transport category
· Tunnel restriction code | 2
D/E |

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· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 1993 FLAMMABLE LIQUID, N.O.S. (DIETHYL KETONE), 3, II

SECTION 15: Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture: (Substances not listed)**

None of the ingredients is listed.

- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** None of the ingredients is listed.
- **Seveso category P5c** FLAMMABLE LIQUIDS
- **Qualifying quantity (tonnes) for the application of lower-tier requirements** 5,000 t
- **Qualifying quantity (tonnes) for the application of upper-tier requirements** 50,000 t
- **National regulations:**
- **VOC (EU)** 466.3 g/l
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

· **Disclaimer**

This safety data sheet contains only safety relevant information. The information is based on the state of our knowledge at the time of revision, however, it does not constitute a guarantee of product properties, product information or product specifications and does not establish a contractual legal relationship. This document is only valid in its unchanged form. In the event of changes by third parties, the exhibitor accepts no responsibility for form and content or for any damages or claims arising from such changes. The information is not transferable to other products. If the product named in this safety data sheet is mixed, blended or processed with other materials or is subjected to processing, the information in this safety data sheet cannot be transferred to the new material produced in this way, unless expressly stated otherwise. The data sheet does not release the user from the obligation to ensure that he acts in accordance with all regulations in connection with his activity.

· **Relevant phrases**

H225 Highly flammable liquid and vapour.
 H319 Causes serious eye irritation.
 H335 May cause respiratory irritation.
 H336 May cause drowsiness or dizziness.
 EUH066 Repeated exposure may cause skin dryness or cracking.

· **Department issuing SDS:** Quality Management department

· **Contact:** MSDS authorized Person

· **Abbreviations and acronyms:**

ADR: Accord relatif au transport international 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
 ELINCS: European List of Notified Chemical Substances
 CAS: Chemical Abstracts Service (division of the American Chemical Society)

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VOC: Volatile Organic Compounds (USA, EU)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 2: Flammable liquids – Category 2
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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