

Safety Data Sheet

in accordance with Regulation (EC) No. 1907/2006 (REACH)



TEST INK / PEN PINK 28 mN/m

Product no.: 40.60128.0 / 40.45128.0

Revision date: 01/12/2023

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1. Identification of the substance or mixture and of the company

1.1 Product identifier:

Trade name / designation:

TEST INK / TEST PEN

UFI-Codes:

TEST INK PINK 28 mN/m - JH7Q-PPW8-UC02-QP87

TEST PEN PINK 28 mN/m - 5QPC-NNHM-HC0U-D0CG

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

1.2.1 Uses of the substance or mixture:

Determination of the surface tension and surface cleanliness of solids (films / moulded parts) made of plastic, metal, glass etc.

1.2.2 Uses advised against: Do not use for products which come into contact with foodstuffs. Do not use for private purposes (household).

1.3 Details of the supplier of the safety data sheet

Company name

arcotest GmbH

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71297 Mönsheim, Germany

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1.4 EMERGENCY TELEPHONE NUMBER:

+49 170 5351 781

(24h in German and English)

2. Possible Dangers

2.1 Classification of the mixture:

Regulation (EC) No. 1272/2008

Flammable liquids, category 3 H226

Skin irritation H315

Eye irritation H319

Additional information:

Full text of H and EUH phrases: see under section 16.

Maximum 15 % ethanol in mixture

2.2 Labelling elements

Labelling in accordance with Regulation (EG) No. 1272/2008 [CLP]

Hazard-determining components of labeling:

Ethanol (maximum 15 %)

2-Methyl-2,4-pentandiol

Hazard pictograms:



Signal word:

Warning

Hazard statements:

H226 : Flammable liquid and vapour

H315 : Causes skin irritation

H319: Causes serious eye irritation

Precautionary statements:

P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P233: Keep containers tightly closed

P241: Use explosion-proof electrical equipment / ventilation systems / lighting system

P302 + P352: IN CASE OF CONTACT WITH THE SKIN: Wash with plenty of soap and water.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P264: Wash hands thoroughly after use
 P280: Wear protective gloves / protective clothing / eye protection / face protection
 P302 + P352: IN CASE OF CONTACT WITH THE SKIN: Wash with plenty of soap and water.
 P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P403+P233: Store in a well-ventilated place. Keep containers tightly closed.
 P501 Dispose of contents / container to a hazardous waste collection point or special requirements in accordance with local, regional or international regulations.

Labelling of packaging with contents of no more than 125 ml

Signal word: Warning

Hazard symbol:



For professional users only.

2.3 Other hazards:

No additional information is available.

Results of PBT- and vPvB assessment (Ethanol 642 – 99,9 %):

PBT: The product does not meet the PBT criteria as per regulation (EG) No. 1907/2006, Annex XIII.

vPvB: The product does not meet the vPvB criteria as per regulation (EG) No. 1907

3. Composition / Information on Ingredients

3.2 Mixtures

Hazardous ingredients

| Designation | | | | |
|--|------------|-----------------------|---------------|-----------------|
| CAS No. | EC No. | REACH No. | Index No. | Proportion in % |
| Classification in accordance with Regulation (EG) No. 1272 [CLP] | | | | MG in g/mol |
| Ethanol - C₂H₅OH C₂H₆O | | | | |
| 64-17-5 | 200-578-6 | 01-2119457610-43-xxxx | 603-002-00-5 | < 15 % |
| H225; H315; H319 | | | | 46.07 g/mol |
| 2-Methyl-2,4-pentanediol - C₆H₁₄O₂ | | | | |
| 107-41-5 | 203-489-02 | 01-2119539582-35-xxxx | 603-053-00-36 | < 95 % |
| H315; H319 | | | | 118.17g/mol |

Preparation of ethanol denatured with MEK, 2-Methyl-2,4-pentanediol and chromophoric components.

Additional information:

Full text of H and EUH phrases: see under section 16.

4. First Aid Measures

4.1 Description of first aid measures

After inhalation:

Supply fresh air

After skin contact:

Rinse with plenty of water. Remove contaminated clothing.

After eye contact:

Rinse with plenty of water. Consult an eye specialist immediately.

After ingestion:

Drink plenty of water immediately (maximum 2 glasses). Consult a doctor

4.2 Most important symptoms and effects, both acute and delayed

Irritant effects, respiratory paralysis, dermatitis, dizziness, narcosis, intoxication, euphoria, nausea, vomiting, coughing, convulsions, unconsciousness, headache.

4.3 Indication of any immediate medical attention or special treatment needed

No information available.

5. Fire-fighting Measures

5.1 Extinguishing agents:

Carbon dioxide (CO₂), foam, extinguishing powder

5.2 Specific hazards arising from the substance or mixture

Flammable substances, vapours are heavier than air and spread over the floor.

Explosive mixtures with air may form at ambient temperatures. Watch out that the fire does not reignite.

Hazardous combustion gases or vapours may form in case of fire.

5.3 Advice for fire-fighters

Wear self-contained breathing apparatus in case of fire. Avoid skin contact by keeping a safe distance or wearing suitable protective clothing.

Additional information:

Use a water spray jet to cool closed containers near to the source of the fire. Prevent extinguishing water from entering the surface water or ground water system.

6. Accidental Release Measures**6.1 Personal precautions, protective equipment and emergency procedures****For non-emergency personnel**

Do not inhale vapours/aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger zone, observe emergency procedures, consult an expert.

Emergency services

Protective equipment: see section 8

6.2 Environmental precautions:

Do not empty into drains. Risk of explosion.

6.3 Methods and material for containment and cleaning up

Seal drains. Contain, control and pump off the spillage.

Please note possible material restrictions! (Information in section 7 or section 10)

Absorb with liquid-binding material, e.g. Chemizorb®. Send for disposal. Clean up area.

6.4 Reference to other sections

Refer to safe handling see section 7.

Refer to personal protective equipment see section 8.

Refer to section 13 for disposal information

7. Handling and Storage**7.1 Precautions for safe handling****Protective measures:**

Observe the instructions on the label.

Keep away from open flames, hot surfaces and ignition sources. Take precautionary measures against static discharges.

7.2 Conditions for safe storage, including any incompatibilities**Requirements for storage facilities and containers:**

Keep containers tightly closed in a dry and well-ventilated place. Keep away from heat and ignition sources.

Recommended storage temperature: 15 – 25 °C

7.3 Specific end uses:

There are no other specific end uses other than those referred to in section 1.

8. Exposure Limitation and Control / Personal Protective Equipment**8.1 Control parameters**

Components with limit values that require monitoring at the workplace

8.1.2 Biological limit values:

TRGS 900 (Ethanol 642 – 99.9%)

Name: Ethanol (64-17-5)

Value (AGW): 200 ppm, 380 mg/ m³

Peak limit: Overrun factor 4

Duration: 15 min. Mean value; 4 times per shift; distance 1 h

Category: II - Resorptive substances

Butanon 78-93-3

Name: Ethyl methyl ketone (78-93-3)

Value (AGW): 200 ppm; 600mg/m³

Peak limit: 1

Category for short-term values: Category I: substances for which the localised effect has an assigned limit value or for substances with a sensitising effect in respiratory passages.

There is no need to be concerned about the risk of foetal damage when complying with the workplace limit values (AGW) and the biological limit values (BGW)

EC value (ECTLV)

Short-term value: 300 ppm; 900 mg/m³

Daily average value: 200 ppm; 600 mg/m³

Biological tolerance values for occupational exposure – Germany (BAT):

5 mg/l Parameter: 2-Butanone

Test material: urine

Sampling time: end of exposure, end of shift

Name: 2-Methyl-2,4-pentanediol: Contains no substances with workplace limit values.

8.2 Exposure limitation and control

The usual precautionary measures when handling chemicals must be observed.

8.2.1 Appropriate engineering controls:

The method for measuring the workplace atmosphere must comply with the requirements of DIN EN 482 and DIN 689.

8.2.2 Personal protective equipment:

Body protection needs to be selected specifically for the workplace based on the concentration and volume of hazardous substances. The chemical resistance of the protective equipment should be ascertained with the respective supplier.

As work is generally carried out with very small quantities, there is less need for personal protective equipment with the exception of appropriate hand protection if used carefully and properly with a brush or pen application as long as skin contact can be excluded. It is advisable to use special skin barrier cream to protect the skin.

Hygiene measures:

Change contaminated clothing immediately. Preventative skin protection. Wash hands and face after finishing work.

Eye protection:

Safety goggles

Hand protection:

In full contact: Hand protection material: Nitrile rubber,

Layer thickness: 0.40 mm, > 480 min breakthrough time

With splash contact: Hand protection material: nitrile rubber,

Layer thickness: 0.11 mm, >240 min breakthrough time

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the resultant standard EN 374, for example KCL 706 Lapren® (full contact), KCL 741 Dermatril® L (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests according to EN374 with samples of the recommended glove types.

This recommendation applies only for the product mentioned in this safety data sheet that is supplied for the purpose specified by us. If it is dissolved in or mixed with other substances and under conditions deviating from EN374, you will need to contact suppliers of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell).

Respiratory protection:

Required when vapours/aerosols are generated.

Recommended filter type: filter A

The operator must ensure that the maintenance, cleaning and testing of breathing apparatus is carried out and documented in accordance with the manufacturer's user information.

8.2.3 Environmental exposure limitation and control

Do not empty into drains

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

| | |
|--------------------------------|---|
| Form: | liquid |
| Colour: | pink |
| Odour: | alcohol-like |
| pH value: | no information available |
| Melting point: | no information available |
| Boiling point / boiling range: | no information available |
| Flash point: | approx. 12°C (with 100% Ethanol) up to 93°C (c.c) |
| Evaporation rate: | no information available |
| Flammability: | no information available |
| Lower explosion limit: | approx. 1 - 3.3 % vol |
| Upper explosion limit: | approx. 9.9 - 19 % vol |
| Vapour pressure:(20°C): | approx. 0.07- 59 hPa |
| Density: | no information available |

| | |
|---|---|
| Water solubility: | no information available |
| Partition coefficient; Octanol/water | log Pow: approx. -0.32 to approx. 0.58 Method: (experimental) (lit.) Bioaccumulation is not expected (log Pow <1) |
| Autoignition temperature: | no information available. |
| Decomposition temperature: | no information available |
| Viscosity, dynamic: | no information available |
| Explosive properties: | no information available |
| Oxidising properties: | no information available |
| Other information: | |
| Ignition temperature: | no information available |
| Particle characteristics: | not relevant (liquid) |

10. Stability and Reactivity

10.1 Reactivity:

Vapours may form an explosive mixture with air.

10.2 Chemical stability:

The product is chemically stable under normal ambient conditions (room temperature).

10.3 Possibility of hazardous reactions:

Risk of explosion, risk of ignition or formation of flammable gases or vapours with: strong oxidising agents, mineral acids, acids.

10.4 Conditions to avoid:

Heating. A range from approx 15 Kelvin below the flash point is to be considered critical.

10.5 Incompatible materials:

No information available

10.6 Hazardous decomposition products:

No information available

11. Toxicological Information

11.1 Information on toxicological effects

11.1.1 Substances

Acute toxicity (Ethanol 642 — 99.9%)

Oral: LD50 rat: dose 6200 mg/kg (IUCLID); symptoms: nausea, vomiting

Inhalation: LC50 mouse: dose >20 mg/l, 4h (RTECS); symptoms: mild irritation of mucosal membranes, absorption

Dermal: LD50 (rabbit): > 20000 mg/kg (OECD TG 402) literature value

Skin irritation (rabbit): No irritation (OECD 404)

Eye irritation (rabbit): No irritation (OECD 405)

Sensitisation test (Magnusson and Kligman): negative (IUCLID)

In-vitro genotoxicity: Ames test (Salmonella typhimurium): negative (National Toxicology Program)

Acute toxicity of 2-Methyl-2,4-pentanediol

Oral: LD50 rat: dose 3692 mg/kg (IUCLID); absorption

Inhalation: Symptoms: mucosal irritation, coughing, dyspnoea

Dermal: LD50 rabbit: dose 8000 mg/kg (RTECS);

Skin irritation with 2-Methyl-2,4-pentanediol (rabbit): Irritations (IUCLID)

Eye irritation with 2-Methyl-2,4-pentanediol (rabbit): Causes serious eye irritation (IUCLID)

In-vitro genotoxicity with 2-Methyl-2,4-pentanediol Ames test: negative (IUCLID)

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant.

Specific target organ toxicity (single exposure)

The mixture is not classified as target organ toxic with single exposure.

Specific target organ toxicity (repeated exposure)

The mixture is not classified as target organ toxic with repeated exposure.

Risk of aspiration

No information available

Further information:

Systemic effects: Euphoria. After absorption of large quantities: dizziness, intoxication, narcosis, respiratory paralysis, convulsions, drop in blood pressure, tachycardia

Further information:

Take the normal precautions when handling chemicals.

11.2 Endocrine disrupting properties

Not listed.

11.3 Information on other hazards

There is no additional information.

12. Ecological Information

12.1 Ecotoxicity:

Ethanol 642 – 99.09%:

Fish toxicity: LC50 Leuciscus idus 8140 mg/l / 48 h (IUCLID)
Daphnia toxicity: EC5 Entosiphon sulcatum: 65 mg/l / 72 h (toxic limit concentration) (lit)
EC50 Daphnia magna: 9268-14221 mg/l / 48 h (IUCLID)
Algal toxicity: IC5 Scenedesmus quadricauda: 5000 mg/l / 7 d (toxic limit concentration) (lit)
Bacteria toxicity: EC5 Pseudom. putida: 6500 mg/l 16 h (toxic limit concentration) (IUCLID)

Methyl-2,4-pentanediol:

Fish toxicity: LC50 Gambusia affinis: 8510 mg/l / 96 h (ECOTOX Database)
Daphnia toxicity: EC50 Daphnia magna: 5.410 mg/l / 48 h (IUCLID)
Bacteria toxicity: EC50 Photobacterium phosphoreum: 3070 mg/l 5 min (IUCLID)

12.2 Persistence and degradability

Ethanol 642 – 99.09%:

Readily biodegradable: >70% (OECD 301D)

2-Methyl-2,4-pentanediol:

Readily biodegradable: >70%/28 d (OECD 302 B)
Biochemical oxygen demand (BSB): 2302 mg/g (5d) (lit.)

12.3 Bioaccumulation potential:

Partition coefficient; n-Octanol / water

Ethanol 642 – 99.09%: Log Pow: -0.32 (experimental) (lit)
2-Methyl-2,4-pentanediol: Log Pow: 0.58 (calculated)

Bioaccumulation is not expected (log Pow < 1)

12.4 Mobility in soil

No information available

12.5 Results of PBT and vPvB assessment

A PBT/vPvB assessment is not available and a chemical safety assessment is not required / has not been carried out.

12.6 Other harmful effects:

Additional ecotoxicological information:

Do not allow to enter watercourses, waste water or soil!

12.7 Endocrine disrupting properties

Not listed.

12.8 Other adverse effects

Data are not available.

13. Disposal Considerations

13.1 Waste management process

This product and its container must be disposed of as hazardous waste. Disposal of contents and containers in accordance with local/regional/international regulations.

Information relevant for waste water disposal

Do not allow to enter sewerage system.

13.2 Relevant waste legislation

The assignment of the waste code numbers /waste designations shall be carried out in accordance with EAKV in a sector- and process-specific manner.

13.3 Notes

Waste shall be separated in such a way that it can be treated separately by municipal or national waste facilities. Please observe the relevant national or regional regulations.

13.4 Further information

Ink that is no longer usable can be returned for disposal.

14. Transport Information

Not governed by the transport regulations as the ratio of ethanol is below 24%.

14.1 Special precautions for users

Not classified as a hazardous material according to the ADR/RID, ADN, IATA, IMDG transport regulations

14.2 Transport in bulk according to Annex II of the MARPOL 73/78 Convention and the IBC Code

Not relevant.

15. Regulatory Information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****15.1.1 EU regulations****Hazardous Incident Ordinance:** 96/82/EC Edition: 2003

Flammable.

7b

Quantity 1: 5000 t

Quantity 2: 50000 t

Employment restriction: Observe employment restrictions in accordance with the Youth Protection Act (94/33/EC).**Relevant European Union (EU) regulations for Ethanol / Methyl-2,4-pentandiol:****Regulation 649/2012/EU on the export and import of dangerous chemicals (PIC).**

Not listed.

Regulation 1005/2009/EC on substances that deplete the ozone layer (ODS).

Not listed.

Regulation 850/2004/EC on Persistent Organic Pollutants (POP)

Not listed.

Regulation 75/324/EEG on Aerosol packages

Filling lot.

Decopaint Directive (2004/42/EC)

Ethanol: VOC-Content 100 %

Methyl-2,4-pentandiol: 100 % / 920 g/l

Regulation Industrial (VOCs, 2010/75/EU)

Ethanol: VOC-Content 100 %

Methyl-2,4-pentandiol: 0 % / 0 g/l

Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) - Annex II

Not listed

Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Pollutant Release and Transfer Register (PRTR)

not listed

Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)

Not listed.

Regulation 98/2013/EU on the marketing and use of explosives precursors

Not listed

Regulation 111/2005/EC laying down rules for the monitoring of trade between the Community and third countries in drug precursors

Not listed

Restrictions according to REACH, Title VIII

Not listed.

List of substances subject to authorisation (REACH, Annex XIV) /SVHC - candidate list

Not listed.

15.1.2. Substance is listed in the following national inventories:

| Country | National Directories | Substance status |
|---------|----------------------|--|
| AU | AICS | Ethanol is listed Methyl-2,4-pentandiol is listed |
| CA | DSL | Ethanol is listed Methyl-2,4-pentandiol is listed |
| CN | IECSC | Ethanol is listed Methyl-2,4-pentandiol is listed |
| EU | ECSI | Ethanol is listed Methyl-2,4-pentandiol is listed |
| EU | EINECS/ELINCS/NLP | Ethanol is listed Methyl-2,4-pentandiol is listed |
| JP | CSCL-ENCS | Ethanol is listed Methyl-2,4-pentandiol is listed |
| KR | KECI | Ethanol is listed Methyl-2,4-pentandiol is listed |
| MX | INSQ | Ethanol is listed Methyl-2,4-pentandiol is listed |
| NZ | NSQ | Ethanol is listed Methyl-2,4-pentandiol is listed |

| Country | National Directories | Substance status |
|---------|----------------------|--|
| PH | PICCS | Ethanol is listed Methyl-2,4-pentandiol is listed |
| TR | CICR | Ethanol is listed Methyl-2,4-pentandiol is listed |
| TW | TCSI | Ethanol is listed Methyl-2,4-pentandiol is listed |
| US | TSCA | Ethanol is listed Methyl-2,4-pentandiol is listed |

Legende

AICS Australian Inventory of Chemical Substances
 CICR Chemical Inventory and Control Regulation
 CSCL-ENCS List of Existing and New Chemical Substances (CSCL-ENCS)
 DSL Domestic Substances List (DSL)
 ECSI EG-Stoffverzeichnis (EINECS, ELINCS, NLP)
 IECSC Inventory of Existing Chemical Substances Produced or Imported in China
 INSQ National Inventory of Chemical Substances
 KECI Korea Existing Chemicals Inventory
 NZIoC New Zealand Inventory of Chemicals
 PICCS Philippine Inventory of Chemicals and Chemical Substances (PICCS)
 REACH Reg. REACH registrierte Stoffe
 TCSI Taiwan Chemical Substance Inventory
 TSCA Toxic Substance Control Act

15.1.2 National regulations (Germany)

Storage class VCI: 3 Flammable liquid substances

BG Chemie data sheet:

M004 Irritating substances / corrosive substances

M017 Solvents

M050 Handling hazardous materials

Water hazard class: WGK 1 Slightly harmful to water

15.2 Chemical safety assessment:

No chemical safety assessment has been carried out for this product.

16. Other Information**16.1 Changes made (revised safety data sheet)**

Notice of changes: Section 1 Section 2 Section 3 Section 7

16.2 Abbreviations and acronyms

ADR European Agreement concerning the International Carriage of Dangerous Goods by Road
 CAS Chemical Abstracts Service
 DIN German Institute for Standardisation
 EG European Community
 IATA-DGR International Air Transport Association – Dangerous Goods Regulations
 IBC Code International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
 IMDG Code International Maritime Code for Dangerous Goods
 ISO International Standards Organisation
 IUCLID International Uniform Chemical Information Database
 LC Lethal Concentration
 LD Lethal Dose
 log K_{ow} Partition coefficient between octanol and water
 OECD Organisation for Economic Co-operation and Development
 PBT Persistent, Bioaccumulative, Toxic
 RID Regulations concerning the International Carriage of Dangerous Goods by Rail
 TRGS Technical Rules for Hazardous Substances
 UN United Nations
 VOC Volatile Organic Compounds
 vPvB very Persistent and very Bioaccumulative
 VwVwS Administrative Regulation on the Classification of Substances Hazardous to Water
 WGK Water Hazard Class

16.3 Most important literature references and data sources

The data for the ingredients was taken from the most recent version of the pre-supplier's safety data sheet. Regulation (EC) No. 1907/2006 (REACH), amended by 2020/878/EU.

16.4 Classification of mixtures and evaluation methods used in accordance with Regulation (EC) No. 1272/2008 [CLP]

See section 2.1 (classification).

16.5 Wording of H and EUH phrases (number and full text):

H226: Flammable liquid and vapour

H315: Causes skin irritation

H319: Causes serious eye irritation.

16.6 Training advice:

Provide appropriate information, instructions and training for users.

16.7 Other information:

The health hazards referred to in this data sheet may occur if larger quantities of the product are handled carelessly or inappropriately and when safety precautions and hygiene measures are not observed. However, as a quantity of several milligrams is used in a process to measure the surface tension and these measurements are not continuous but instead conducted over a period of one or more hours, we can practically exclude any damage to health if the product is handled correctly and the prescribed safety measures are observed (these include good ventilation and appropriate hand protection).

| | | |
|---------------------|--------|--|
| Information: | Phone | +49 7044 9022 70 |
| | Fax | +49 7044 9022 69 |
| | E-mail | info@arcotest.info |

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