

SAFETY DATA SHEET

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TEST INKS/PENS PINK 30 - 44 mN/m

in accordance with Regulation (EC) No. 1907/2006 (REACH) Revised: 28/01/2015

1. Identification of Substance/Preparation and Company Designation

Product designation:	TEST INKS (Art. No. 40.60...0) TEST PENS (Art. No. 40.451...0)
Use of substance:	Determining the surface tension and the degree of cleanliness of the surfaces of solid bodies, such as plastic films and moulded parts from these materials
REACH	01-2119539582-35-XXXX (2-Methyl-2,4-pentandiol) 01-2119457857-21-XXXX (Diethylene glycol)
CAS No.:	107415 (2-Methyl-2,4-pentandiol) 111466 (Diethylene glycol)
Manufacturer/supplier:	arcotest GmbH Rotweg 25, D-71297 Mönsheim Mr Christian Müller Tel: 0049 0 7044 4 902270 Fax: 0049 0 7044 4 902269

2. Possible Dangers

Classification of the mixture (Regulation (EC) No. 1272/2008)

Eye irritation, category 2	H 319
Irritant effect on the skin, category 2	H 315
Acute toxicity, category, oral	H 302

Classification 67/548/ EEC or 1999/45/EC:

Xn; R22
Xi; R36/38

See section 16 for the full text of the R-phrases referred to here.

Labelling elements

Labelling (REGULATION (EC) No. 1272/2008)

Hazard pictograms



Signal word: **Caution**

Hazard statements

H302: Harmful if swallowed.
H315: Causes skin irritation
H319: Causes serious eye irritation.

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Precautionary statements

P302 + P352: IN CASE OF CONTACT WITH THE SKIN: Wash with plenty of soap and water.

P301 + P312: IF SWALLOWED: Call a doctor if feeling unwell.

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

Labelling (67/548/EEC or 1999/45EC)

Symbol(e)	Xi	Irritant
	Xn	Harmful

Other hazards

None known.

3. Composition / Information on Ingredients

Designation	Formula	%	CAS No.	INDEX No.	EC No.	MG g/mol
2-Methyl-2,4-pentanediol	C ₆ H ₁₄ O ₂	3-90	107-41-5	603-053-00-3	203-489-0	118.17
Diethylene glycol <i>Synonym: 2,2'-Oxydiethanol</i>	(HOCH ₂ CH ₂) ₂ O C ₄ H ₁₀ O ₃ (Hill)	10-97	111-46-6	603-140-00-6	203-872-2	106.12

Preparation of organic solvents and colouring components (0.2%).

4. First Aid Measures

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). Administer: Activated carbon (20-40 g in a 10% suspension). Consult a doctor.

Most important symptoms and effects, both acute and delayed:

Irritant effects, coughing, dyspnoea, dizziness, unconsciousness, headache, convulsions, gastro-intestinal complaints, nausea, vomiting.

Indication of any immediate medical attention or special treatment needed:

no information available.

5. Fire-fighting Measures

Suitable extinguishing agents:

Water, carbon dioxide (CO₂), foam, extinguishing powder

Unsuitable extinguishing agents:

There are no extinguishing agent limitations for this mixture.

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Specific hazards arising from the mixture:

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

Intense heating may cause explosive mixtures with air to form.

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

Hazardous combustion gases or vapours may form in case of fire: carbon monoxide and carbon dioxide.

Special protective fire-fighting equipment:

Do not stay in the danger area without self-contained breathing apparatus. Avoid skin contact by keeping a safe distance or wearing suitable protective clothing.

Further information:

Use a water spray jet to cool closed containers near to the source of the fire. Damp down escaping vapours with water.

Prevent extinguishing water from entering the surface water or ground water system.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures, information for trained emergency personnel:

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

Information for emergency services: protective equipment: see section 8

Environmental precautions:

Do not empty into drains. Risk of explosion.

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.

Reference to other sections

Refer to section 13 for disposal information

7. Handling and Storage

Precautions for safe handling

Avoid formation of aerosols. Keep container tightly closed

Conditions for safe storage, including any incompatibilities

Store tightly closed.

Store at +15°C to + 25°C.

Specific end uses

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

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8. Exposure Controls / Personal Protection

Control parameters

Components with limit values that require monitoring at the workplace

TRGS 900

Name:	Diethylene glycol
Value (AGW):	Long-term value: 44 mg/m ³ , 10 ml/m ³ , 4(II); DFG, Y,11
DNEL values:	Operators : 106 mg/kg (dermal); 60 mg/m ³ (inhalative) Consumers: 53 mg/kg (dermal); 12 mg/m ³ (inhalative)
PNEC values:	1.53 (soil); 199.5mg/l (waste water treatment plants); 1 mg/l (sea water); 20.9 mg/kg (freshwater sediment); 10 mg/l (freshwater); 10 mg/l (sporadic release)

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).

Recommended monitoring methods:

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

Exposure controls

Technical protection measures and the use of suitable working methods always have priority over the use of personal protective equipment. See section /

Individual protection measures:

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 0.50 mm, > 480 min breakthrough time

With splash contact:

Hand protection material: Nitrile rubber, layer thickness 0.50 mm, >480 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.

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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.

Environmental exposure controls:
Do not empty into drains.

9. Physical and Chemical Properties

Form:	liquid
Colour:	pink
Odour:	almost odourless
Odour threshold:	no information available
pH value:	(20°C) 6-8 at 200 g/l
Melting point:	by grading, between -40 and 10°C (DIN 51583)
Boiling point/boiling range:	by grading, between 196 and 252°C at 1013 hPa (DIN 53171)
Flash point:	between 93 and 135°C c.c. (DIN 51758)
Evaporation rate:	no information available
Flammability (solid, gaseous):	no information available
Lower explosion limit:	between 0.7 u. 1 % vol
Upper explosion limit:	between 9.9 and 22 % vol
Vapour pressure:	(20°C): between 0.013 and 0.07 hPa
Relative vapour density:	4
Density:	(20°C) between 0.92 and 1.12 g/cm ³ (DIN 51757)
Solubility:	no data available
Water solubility:	(20°C) soluble
Partition coefficient; n Octanol/water	log Pow: -1.98 to 0.58 (25°C) Method: (IUCLID) (lit.) Bioaccumulation is not expected (log Pow <1)
Autoignition temperature:	no information available
Decomposition temperature:	no information available
Viscosity, dynamic:	(20°C) 36 – 42 mPa. S
Explosive properties:	no information available
Oxidising properties:	no information available
Organic solvent:	100.0 %
VOC (EU)	100.00 %
Other information:	
Ignition temperature:	between 230 and 425 (DIN 51794)

10. Stability and Reactivity

<u>Reactivity:</u>	Intense heating may cause explosive mixtures with air to form.
<u>Chemical stability:</u>	The product is chemically stable under normal ambient conditions (room temperature).
<u>Potentially hazardous reaction:</u>	Possible violent reactions with : Mineral acids, strong oxidising agents

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Conditions to avoid: Intense heating. A range from approx 15 Kelvin below the flash point is to be considered critical.

Incompatible materials: Zinc, oxidising agents, acids

Hazardous decomposition prod.: No information available

11. Toxicological Information

Acute toxicity of Diethylene glycol

Oral: LD50 rat: dose 12565 mg/kg
LDLO human: dose 1120 mg/kg

Dermal: LD50 rabbit: dose 11890 mg/kg

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 Diethylene glycol (rabbit):	No irritation
Skin irritation with 2-Methyl-2,4-pentanediol (rabbit):	Irritations (IUCLID)
Eye irritation with Diethylene glycol (rabbit):	No irritation
Eye irritation with 2-Methyl-2,4-pentanediol (rabbit):	Causes serious eye irritation (IUCLID)
Sensitisation test with Diethylene glycol (guinea pig):	Negative
In-vitro genotoxicity with Diethylene glycol	Ames test: negative (IUCLID)
In-vitro genotoxicity with 2-Methyl-2,4-pentanediol	Ames test: negative (IUCLID)

CMR effects

No information available.

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 classification with regard to aspiration toxicity

Further information

Systemic effects: After absorption of large quantities: tiredness, CNS disorders, headache, dizziness, convulsions, unconsciousness, drop in blood pressure, tachycardia

Further information:

Take the normal precautions when handling chemicals.

12. Ecological Information

Ecotoxicity

Diethylene glycol:

Fish toxicity: 75200 mg/l/96 h (Pimephales promelas)
Daphnia toxicity: EC50 Daphnia magna: >10000 mg/l /24 h
Algal toxicity:NOEC Scenedesmus quadricauda: 2700 mg/l /8 d (lit)

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2-Methyl-2,4-pentanediol:

Fish toxicity: LC50 *Gambusia affinis*: 8510 mg/l/ 96 h (ECOTOX Database)

Daphnia toxicity: EC50 *Daphnia magna*: 3200 mg/l /48 h (IUCLID)

Bacteria toxicity: EC50 *Photobacterium phosphoreum*: 3070 mg/l 5 min (IUCLID)

Persistence and degradability:

Biodegradability:

Diethylene glycol:

>91.8% / 28 d

2-Methyl-2,4-pentanediol:

>70%/ 28 d (OECD 302 B)

Result: easily eliminated (DOC reduction >70%)

BOD/ThBOD ratio (BSB5): 1.3 – 10 % (lit)

COD/ThBOD ratio: 99 % (lit)

Theoretical oxygen demand (ThOD): 1510 mg/g (lit)

Bioaccumulation potential

Partition coefficient; n-Octanol / water

Diethylene glycol:

log Pow < 4

2-Methyl-2,4-pentanediol:

Log Pow: 0.58 (calculated)

Bioaccumulation is not expected (log Pow<1)

Mobility in soil:

no information available

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.

Other harmful effects

Other ecological information

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

13. Disposal Considerations

Waste management process

Product residues must be disposed of in compliance with Waste Directive 2008/98/EC as well as the national and regional regulations.

Leave chemicals in original containers. Do not mix with other waste. Uncleaned containers must be handled according to the product.

Use the address to contact us if you have any questions.

14. Transport Information

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

Transport in bulk according to Annex II of the MARPOL 73/78 Convention and the IBC Code:
Not relevant

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15. Regulatory Information

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

EU regulations

Hazardous Incident Ordinance: 96/82/EC

Directive 96/82/EC does not apply

Employment restriction: Observe employment restrictions in accordance with the Youth Protection Act (94/33/EC).

Observe employment restrictions in accordance with the Pregnant Workers Directive (EC 92/85/EEC) for expectant or nursing mothers.

National regulations:

Storage class VCI: 10 Flammable liquids unless storage class 3

Water hazard class: WGK 1 Slightly harmful to water

BG Chemie data sheet:

M017	Solvents
M004	Irritating substances/corrosive substances
M050	Handling hazardous materials

Technical Instructions on Air Quality:

Class NC Ratio 100%

Chemical safety assessment:

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

16. Other Information

Full text of the hazard statements in sections 2 and 3.

H302: Harmful if swallowed.

H315: Causes skin irritation

H319: Causes serious eye irritation.

Full text of R-phrases referred to in section 2 and 3.

R phrases	22	Harmful if swallowed.
	36/38	Irritating to eyes and skin.

Training advice

Provide appropriate information, instructions and training for users.

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: Tel: 0049 7044 902270
info@arcotest.info

Fax: 0049 7044 902269

The information contained herein is based on our present knowledge and characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product described.