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

1.1 Product identifier:
Trade name / designation:
TEST INK / TEST PEN
UFI-Codes: see annex of this safety data sheet.

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
Address	Rotweg 25 71297 Mönsheim, Germany
Phone	+49 7044 9022 70
Fax	+49 7044 9022 69
Contact for information	Mrs Anca Muresan
E-mail	info@arcotest.info
Website	www.arcotest.info
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

Carcinogenicity, category 2,	H351
Reproductive toxicity, category 1B,	H360FD
Specific target organ toxicity - repeated exposure, category 2, blood, cardiovascular system,	H373

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

2.2 Labelling elements
Labelling in accordance with Regulation (EG) No. 1272/2008 [CLP]
Hazard pictograms:

Signal word:
Danger
Hazard-determining components of labeling:
Formamide
Hazard statements:
H360FD May damage fertility. May damage the unborn child.
H351 May cause cancer.
H373 May cause damage to organs (blood, cardiovascular system) through prolonged or repeated exposure.
Precautionary statements:
Prevention
P201: Obtain special instructions before use.
Reaction
P314 Get medical advice/attention if you feel unwell.
P308+P313: IF EXPOSED or concerned: get medical advice/attention.

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: Danger
Hazard symbol:

For professional users only.
2.3 Other hazards:
No additional information is available.

3. Composition / Information on Ingredients

3.2 Mixtures
Hazardous ingredients

Designation				
CAS No.	EC No.	REACH No.	Index No.	%
Classification in accordance with Regulation (EG) No. 1272 [CLP]				MG in g/mol
Formamide - CH_3NO				
75-12-7	200-842-0	01-2119496064-35-XXXX	616-052-00-8	10-100%
H351; H360FD; H373				45.04 g/mol

Preparation of organic solvents and colouring 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:
Fresh air: Consult a doctor if feeling unwell.
After skin contact:
Rinse with plenty of water. Remove contaminated clothing. Consult a doctor
After eye contact:
In case of contact with eyes, rinse immediately 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
Ataxia (impaired muscle coordination)
4.3 Indication of any immediate medical attention or special treatment needed
No information available.

5. Fire-fighting Measures

5.1 Extinguishing agents:
Suitable extinguishing agents
Water, carbon dioxide (CO2), foam, extinguishing powder
Unsuitable extinguishing agents
DO NOT USE a water jet
5.2 Specific hazards arising from the substance or 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.
The following may be released in case of fire: hydrogen cyanide (hydrocyanic acid), nitrogen oxides.
5.3 Advice for fire-fighters
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.
Additional information:
Prevent extinguishing water from entering the surface water or ground water system.
Damp down gases/vapours/mist with a water spray jet.

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.

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)

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

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

6.4 Reference to other sections

Refer to section 13 for disposal information

7. Handling and Storage

7.1 Precautions for safe handling

Observe the instructions on the label

Protective measures:

Carry out work under a fume hood. Do not inhale substance. Prevent vapours/aerosols from developing.

Notes on general hygiene at the workplace

Wash hands before breaks and at the end of work. Keep away from food, drink and feed.
foodstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage facilities and containers:

Keep tightly closed. Store in a well-ventilated place.

Store under lock or in a way that only experts or their representatives have access.

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 Controls / Personal Protective Equipment

8.1 Control parameters

Contains no substances with workplace limit values.

8.1.2 Biological limit values:

No information.

8.2 Exposure controls

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

8.2.1 Appropriate engineering controls:

No information.

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. Wash hands and face after finishing work. Carry out work under a fume hood. Do not inhale substance. Do not eat or drink at the workplace under any circumstances. Preventative skin protection.

Eye protection:

Safety goggles

Hand protection:

In full contact: Hand protection material: Natural latex,

Layer thickness 0.60 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

8.2.3 Environmental exposure controls
Do not empty into drains

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Form:	liquid
Colour:	blue
Odour:	ammonia-like
pH value:	no information available
Viscosity, dynamic:	not specified
Melting point:	approx. 2°C
Boiling point / boiling range:	approx. 210°C at 1013 hPa (Formamide)
Ignition temperature:	approx. 500 °C (DIN 51794) (Formamide)
Flash point:	approx. 175°C Method: open cup (Formamide)
Oxidising property:	no data available
Solubility:	no data available
Lower explosion limit:	2.7 % vol (Formamide)
Upper explosion limit:	19 % vol (Formamide)
Vapour pressure:	approx. (20°C): 0.08 hPa approx. (50°C): 0.32 hPa
Relative vapour density:	no information available
Density:	no information available
Water solubility:	(20°C) soluble
Autoignition temperature:	no information available
Decomposition temperature:	> 180 °C (Formamide)
Explosive properties:	not classified as explosive
Oxidising properties:	none
Partition coefficient; n Octanol/water	log Pow: -0.82 (25°C) (Formamide) Method: (OECD test guideline 107) (Lit.) Bioaccumulation is not expected
Evaporation rate:	no data available
Particle characteristics:	not relevant (liquid)

9.2 Other information

no data available

10. Stability and Reactivity

10.1 Reactivity:

Intense heating may cause explosive mixtures with air to form.

10.2 Chemical stability:

Sensitive to heat.

10.3 Possibility of hazardous reactions:

Exothermic reaction with oxidising agents and alkalis. Risk of explosion with iodine/pyridine/sulphur trioxide/furfuryl alcohol/phosphorous oxides/hydrogen peroxide.
A risk of explosion and/or the formation of toxic gases exists with the following substances: water separating agents. Hydrogen cyanide Hydrogen cyanide (hydrocyanic acid)

10.4 Conditions to avoid:
Intense heating. Decomposition occurs at temperatures of: >140 °C (> 413.15 Kelvin)
10.5 Incompatible materials:
No information available.
10.6 Hazardous decomposition products:
In case of fire: see section 5

11. Toxicological Information

11.1 Information on toxicological effects
11.1.1 Substances
Acute toxicity of formamide
Oral: LD50 rat: approx. 5,325 mg/kg (OECD 401)
Inhalation: LD50 rat: dose:>21 mg/l, 4h, vapour (OECD 403)
Dermal: Absorption: LD50 rat: dose > 3,000 mg/kg (ECHA)
Skin irritation (rabbit): no irritation
Eye irritation (rabbit): slight irritation (OECD 405)
Sensitisation test in animal testing (guinea pig): negative
In-vitro genotoxicity Ames test (salmonella typhimurium): negative (OECD 471)
Germ cell mutagenicity (mouse): male and female; oral; exposure time: 90 days; negative (OECD 474)
In-vivo genotoxicity (mouse): male, intraperitoneal; 90 days; positive (OECD 474)
Toxicity with a repeated dose (rat):
Oral: 90 d; NOAEL: 40-80 mg/kg (OECD 408)
Skin: 90 d; NOAEL: 300 mg/kg (OECD 411)
CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)
Carcinogenicity: May cause cancer.
Teratogenicity: May damage the unborn child.
Reproductive toxicity: May damage fertility.
Specific target organ toxicity (single exposure)
No information.
Specific target organ toxicity (repeated exposure)
Target organs: Blood, cardiovascular system
May cause damage to organs through prolonged or repeated exposure.
Risk of aspiration
The classification criteria are not met if the available data set is applied
Further information:
Possible effect after contact with substance: ataxia (impaired muscle coordination)
After skin contact: possible dermal absorption.
May be damaged after absorption: liver, kidneys
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:
Formamide:
Fish toxicity: LC50 Leuciscus idus: 4600-9300 mg/l/ 96 h (DIN 38412 Part 15)
Daphnia toxicity: EC50 Daphnia magna: >500 mg/l /48 h (IUCLID)
Algal toxicity: EC50 Algae: >500 mg/l /96 h DIN 38412
Bacteria toxicity: EC50 Pseudomonas putida: >10,000 mg/l 17 h (IUCLID)
Static test EC50 Activated sludge: >1000 mg/l / 30 min OECD 209
12.2 Persistence and degradability
Formamide: 99%; 28 d; aerob; OECD 301A; readily biodegradable
Theoretical oxygen demand with nitrification: 1.777 mg/mg
Chemical oxygen demand: 0.3554 mg/mg
Theoretical carbon dioxide: 0.9775 mg/mg
12.3 Bioaccumulation potential Formamide:
Log Pow: -0.82 (25°C) (OECD 107)

Bioaccumulation is not expected (log Pow>1)

12.4 Mobility in soil Formamide:

Log Koc: 1.101 (calculated) (IUCLID) Mobile in soil.

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:

Biological effects:

No disruptions are expected with the appropriate introduction into adapted biological waste water treatment plants.

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

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

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) or the increasingly stringent national regulations, if applicable.

Substances of very high concern (SVHC): This product contains no substances of very high concern above the statutory concentration limit of ≥ 0.1 % (w/w) in accordance with the REACH Regulation EC No. 1907/2006, Art. 57. Contains: Formamide

Relevant European Union (EU) regulations

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.

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

Name acc. to inventory	CAS-No.	Listed in	Remarks
Formamide	75-12-7	Candidate list	Repr. A57c

Repr.A57c-Protoxic to reproduction

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

Not listed

Directive 75/324/EEC on aerosol dispensers; filling lots

Decopaint Directive (2004/42/EC); Industrial Emissions Directive (VOCs, 2010/75/EU)

Substance name	CAS-No.	Wt.-%	VOC-Content
Formamide	75-12-7	100	100 %

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

not listed

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

not listed

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

not listed

National inventories

Substance is listed in the following national schedules:

Country	National directories	Substance status
EU	EINECS/ELINCS/NLP	Formamide is listed
EU	REACH Reg.	Formamide is listed

Legende
CSCL-ENCS List of Existing and New Chemical Substances (CSCL-ENCS)
ECSI EG-Stoffverzeichnis (EINECS, ELINCS, NLP)
IECSC Inventory of Existing Chemical Substances Produced or Imported in China
REACH Reg. REACH registrierte Stoffe

15.1.2 National regulations (Germany)

Storage class VCI: 6.1C

BG Chemie data sheet: M039 Foetal damage – protection in the workplace
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)

Reference to changes: Section 1 Section 2 Section 3 Section 9

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 hazardous 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):

H360FD May damage fertility. May damage the unborn child.
H351 May cause cancer.
H373 May cause damage to organs (blood, cardiovascular system) through prolonged or repeated exposure.

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

Annex: UFI-CODE

Article	Article-No.	UFI-Code
Test ink BLAU 58 mN/m	4030058	8F71-SMUV-EC0E-WJXP
Test ink BLAU 60 mN/m	4030060	EN71-TM7P-1C0E-783T
Test ink BLAU 62 mN/m	4030062	WT71-TMMF-NC0D-JX8X
Test ink BLAU 64 mN/m	4030064	3Y71-UM08-8C0D-VMF2
Test ink BLAU 66 mN/m	4030066	1581-UMD1-VC0D-69M6
Test ink BLAU 68 mN/m	4030068	GA81-UMRU-GC0C-HYSA
Test ink BLAU 70 mN/m	4030070	5G81-VM4N-3C0C-UNXF
Test pen BLAU 58 mN/m	40.35058	TR2G-FMYR-UC0U-CFK8
Test pen BLAU 60 mN/m	40.35060	GW2G-GMCJ-FC0U-P4RD
Test pen BLAU 62 mN/m	40.35062	J33G-GMRC-2C0T-0TWH
Test pen BLAU 64 mN/m	40.35064	183G-HM44-PC0T-AH2N
Test pen BLAU 66 mN/m	40.35066	3E3G-HMGX-9C0T-N67S
Test pen BLAU 68 mN/m	40.35068	KK3G-HMVQ-WC0S-YVDW
Test pen BLAU 70 mN/m	40.35070	QS3G-JM8H-HC0S-9JK1