

Safety Data Sheet pursuant to Directive (EC) No. 1907/2006

Prepared on: 2021-03-19

Revised on:

Valid from: 03/2021

Version: 1

Replaces version: -

Section 1: Designation of the substance or the mixture, and of the company

1.1 Product identifier

Name of substance / trade name: Test inks 30 – 48mN/m

Product number:

Ink 30: 100037593

Ink 32: 100037594

Ink 34: 100037595

Ink 36: 100037596

Ink 38: 100037597

Ink 40: 100037598

Ink 42: 100037599

Ink 44: 100037600

Ink 46: 100037601

Ink 48: 100037602

Other designations:

Test inks

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

Relevant identified uses:

Measuring the surface energy of components.

Materials such as: plastic, metal, glass, ceramics

Uses advised against:

Use on hot surfaces.

1.3 Information on the supplier who provides the Safety Data Sheet

Manufacturer / Supplier

Diener electronic GmbH & Co. KG

Address

Nagolder Str. 61

Country ID/PO code/town

72224 Ebhausen

Contact person for technical information

Mr Christof Diener

Phone / email:

+49 74 58 – 999 31 - 542 / info@plasma.com

1.4 Emergency phone

Section 2: Potential hazards

2.1 Classification of the substance or mixture

Classification pursuant to Directive (EC) No. 1272/2008

Not a hazardous substance or hazardous mixture pursuant to Directive (EC) No. 1272/2008.

Safety Data Sheet pursuant to Directive (EC) No. 1907/2006

Prepared on: 2021-03-19

Revised on:

Valid from: 03/2021

Version: 1

Replaces version: -

2.2 Identifying elements

Identifying elements pursuant to Directive (EC) No. 1272/2008

Not a hazardous substance or hazardous mixture pursuant to Directive (EC) No. 1272/2008.

2.3 Other hazards

This substance/this mixture does not contain any components in concentrations of 0.1% or higher which are classified as either Persistent, Bioaccumulative and Toxic (PBT) or very Persistent and very Bioaccumulative (vPvB).

Section 3: Composition/information on components

3.2 Mixtures

Name of substance: **Dimethyl ether, dipropylene glycol monomethyl ether**

EC No.: 252-104-2

CAS No.: 34590-94-8 Isomer mix

REACH registration no.: There is no registration number for this substance since the substance and its use are exempt from registration, no registration of the annual tonnage is required, or registration is planned for a later point in time.

Ratio of ink 30:	90%
Ratio of ink 32:	80%
Ratio of ink 34:	50%
Ratio of ink 36:	20%
Ratio of ink 38:	15%
Ratio of ink 40:	10%
Ratio of ink 42:	10%
Ratio of ink 44:	9%
Ratio of ink 46:	5%
Ratio of ink 48:	3%

Classification pursuant to Directive (EC) No. 1272/2008:

Not a hazardous substance or hazardous mixture pursuant to Directive (EC) No. 1272/2008.

Name of substance: **Glycerine**

EC No.: 200-289-5

CAS No.: 56-81-5

REACH registration no.: There is no registration number for this substance since the substance and its use are exempt from registration, no registration of the annual tonnage is required, or registration is planned for a later point in time.

Safety Data Sheet pursuant to Directive (EC) No. 1907/2006

Prepared on: 2021-03-19

Revised on:

Valid from: 03/2021

Version: 1

Replaces version: -

Ratio of ink 30:	8%
Ratio of ink 32:	15%
Ratio of ink 34:	35%
Ratio of ink 36:	60%
Ratio of ink 38:	65%
Ratio of ink 40:	70%
Ratio of ink 42:	65%
Ratio of ink 44:	67%
Ratio of ink 46:	70%
Ratio of ink 48:	67%

Classification pursuant to Directive (EC) No. 1272/2008:

Not a hazardous substance or hazardous mixture pursuant to Directive (EC) No. 1272/2008.

Name of substance: **deionized water**

EC No.: 231-791-2

CAS No.: 7732-18-5

REACH registration no.: There is no registration number for this substance since the substance and its use are exempt from registration, no registration of the annual tonnage is required, or registration is planned for a later point in time.

Ratio of ink 30:	2%
Ratio of ink 32:	5%
Ratio of ink 34:	15%
Ratio of ink 36:	20%
Ratio of ink 38:	20%
Ratio of ink 40:	20%
Ratio of ink 42:	25%
Ratio of ink 44:	25%
Ratio of ink 46:	25%
Ratio of ink 48:	30%

Classification pursuant to Directive (EC) No. 1272/2008:

Not a hazardous substance or hazardous mixture pursuant to Directive (EC) No. 1272/2008.

Section 4: First aid measures

4.1 Description of the first aid measures

In case of aspiration

Due to the vapour pressure, which is low under normal conditions, exposition by inhalation is to be expected mainly if substance is heated. In case of aspiration, provide fresh air to the affected person. In case of respiratory arrest, give artificial respiration.

In case of skin contact

Skin contact is considered the most frequent type of exposition to test inks at the workplace. Wash skin with plenty of water and soap.

In case of eye contact

As a precaution, rinse eyes with plenty of water.

In case of ingestion

Never attempt to give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 Main acute and delayed symptoms and effects

Safety Data Sheet pursuant to Directive (EC) No. 1907/2006

Prepared on: 2021-03-19

Revised on:

Valid from: 03/2021

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Replaces version: -

No data available.

4.3 Information on immediate medical help or special treatments

No data available.

Section 5: Firefighting measures

5.1 Extinguishing agents

Suitable: Water spray jet, alcohol-resistant foam, carbon dioxide, solid extinguishing agent

Unsuitable: depending on environment

5.2 Special hazards posed by the substance or mixture

Carbon oxides. Pressure increase, risk of bursting if heated.

5.3 Notes for firefighting

If possible, remove the container from the hazard zone.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use the specified personal protective equipment. See sections 8. Avoid contact with eyes and skin.

6.2 Environmental precautions

Absorb spilled liquids with universal binder (e.g. diatomaceous earth, vermiculite, sand) and dispose of according to regulations.

Clean soiled items and floors.

Not hazardous to water. Prevent release into the sewers or to the surface and ground water.

6.3 Methods and materials for containment and cleaning up

Absorb spilled liquids with absorptive agents, such as: sand, vermiculite or powdered limestone Place in suitable, sealed containers for disposal.

6.4 Reference to other Section

Disposal: see section 13

Safety Data Sheet pursuant to Directive (EC) No. 1907/2006

Prepared on: 2021-03-19

Revised on:

Valid from: 03/2021

Version: 1

Replaces version: -

Section 7: Handling and storage

7.1 Precautions for safe handling

Do not leave bottles open. Avoid skin contact.

General hygiene:

- Do not eat, drink or smoke in areas where work is done.
- Wash your hands after using the substance.
- Remove contaminated clothing and protective equipment before entering areas where food is consumed.

For information on protective measures, refer to Section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Information on storage conditions

Only substances of the same storage class should be stored together.

Storage of the substance or mixture together or jointly with the following substances is prohibited:

- pharmaceuticals, food or forage, including their additives;
- infectious, radioactive and explosive substances;
- gases;
- heavily oxidising substances of storage class 5.1A;

Storing of the substance or mixture together or jointly with the following substances is permitted under certain conditions only (for details, refer to TRGS 510):

- other explosive substances of storage class 4.1A;
- pyrophoric substances;
- substances which release flammable gases when in contact with water;
- oxidising substances of storage class 5.1B;
- ammonium nitrate and preparations containing ammonium nitrate.
- organic peroxides and self-reactive substances.

The substance should not be stored together or jointly with substances with which hazardous chemical reactions are possible.

Storing together or jointly with test inks of storage class 8B is harmless.

Requirements in storage rooms and containers

Do not refill inks.

Keep containers tightly closed.

Storage at room temperature recommended.

Keep in a dry place.

Protect from overheating/warming.

Storage class (TRGS 510): 10: Flammable liquids

Storage class: 10

7.3 Specific end uses

Industry- and sector-specific guidelines

Please refer to our Technical Data Sheet for additional information.

Section 8: Limiting and monitoring exposure / personal protective equipment

8.1 Parameters to be monitored

Limit values for exposure at the workplace and/or biological limit values

Workplace limit values (Arbeitsplatzgrenzwerte, AGW) applicable in Germany

Name of substance: Dimethyl ether; CAS No.: 34590-94-8

Safety Data Sheet pursuant to Directive (EC) No. 1907/2006

Prepared on: 2021-03-19

Revised on:

Valid from: 03/2021

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Replaces version: -

Basis : TRGS 900 -
Workplace limit values
Workplace limit value: 310mg/m³ / 50ppm
Basis : Directive 2000/39/EC
Indicative occupational exposure limit values for the workplace
TWA value: 308mg/m³ / 50ppm

Name of substance: Glycerine; CAS No.: 56-81-5

Basis : TRGS 900 -
Workplace limit values

Value : 200mg/m³

Relevant DNEL/DMEL/PNEC and other threshold values

- values relevant for human health

Name of substance: Dimethyl ether; CAS No.: 34590-94-8

End point	Threshold value	Protection objective, exposure path	Use in	Duration of exposure
DNEL	308mg/m ³	Human, via inhalation	Employee	Chronic – systemic effects
DNEL	283 mg/kg	Human, via the skin	Employee	Chronic – systemic effects
End point	Threshold value	Environmental compartment		
PNEC	190 mg/L	Water		
PNEC	19 mg/L	Sweet water		
PNEC	1.9 mg/L	Sea water		
PNEC	4.168 g/L	Sewage plant		
PNEC	70.2 mg/kg	Sweet water sediment		
PNEC	7.02 mg/kg	Sea sediment		
PNEC	2.74 mg/kg	Ground		

Name of substance: Glycerine; CAS No.: 56-81-5

End point	Threshold value	Protection objective, exposure path	Use in	Duration of exposure
DNEL	56mg/m ³	Human, via inhalation	Employee	Chronic – local effects
End point	Threshold value	Environmental compartment		
PNEC	8.85 mg/L	Water		
PNEC	0.885 mg/L	Sweet water		
PNEC	0.088 mg/L	Sea water		
PNEC	1,000 mg/L	Sewage plant		
PNEC	3.3 mg/kg	Sweet water sediment		
PNEC	0.33 mg/kg	Sea sediment		
PNEC	0.141 mg/kg	Ground		

Safety Data Sheet pursuant to Directive (EC) No. 1907/2006

Prepared on: 2021-03-19

Revised on:

Valid from: 03/2021

Version: 1

Replaces version: -

8.2 Limiting and monitoring exposure

Suitable technical control equipment

When handling chemical agents, the usual precautions must be applied. Wash your hands before breaks and at the end of work.

Individual protective measures – personal protective equipment

Eye / face protection

Safety eyewear with frame and side protection pursuant to EN 166. Use only eyewear tested and approved according to official standards such as NIOSH (US) or EN 166 (EU).

This recommendation is considered an advice and must be evaluated by a safety expert who is familiar with the specific situation of the intended use.

Skin protection

Wear gloves for work. Check the gloves for intactness before putting them on. Remove them without touching the outside surface of the gloves to avoid skin contact with this product. Dispose of contaminated gloves after use in compliance with the statutory regulations and good laboratory practice. Wash and dry your hands.

The selected protective gloves must meet the specifications of the EC Directive 2016/425 and the derived standard EN 374.

Gloves

In case of full contact / spray contact:

Glove material: NBR, nitrile rubber

Coat thickness (mm): 0.11 mm

Permeation time (min.): 480 min (permeation level: 6)

In case of solution in or mixture with other substances or of conditions deviating from those described in EN 374, contact the supplier of CE-approved gloves. This recommendation is to be seen as a piece of advice; it must be assessed by an industrial hygiene specialist and a safety engineer who know the specific situation of the designated use by the customer in question. The recommendation cannot be interpreted as approval of any specific type of designated used.

Breathing protection

No breathing protection required.

Limiting and monitoring environmental exposure

No specific environmental protection measures required.

Safety Data Sheet pursuant to Directive (EC) No. 1907/2006

Prepared on: 2021-03-19

Revised on:

Valid from: 03/2021

Version: 1

Replaces version: -

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Optical appearance

- Aggregate state: Liquid
- Colour: Red

Odour : Mild ethereal smell

Odour threshold: Not determined

pH value : 6-7

Melting point / freezing point: Not determined

Initial boiling point and boiling range: > 160 °C

Ink 30 146 °C

Ink 32 133 °C

Ink 34 128 °C

Ink 36 124 °C

Ink 38 122 °C

Ink 40 120 °C

Ink 42 118 °C

Ink 44 115 °C

Ink 46 110 °C

Ink 48

Flash point: >60 °C

Evaporation rate: Not determined

Flammability (solid, gaseous): Not applicable

Upper/lower flammability or explosion limits: Not determined

Vapour pressure: Not determined

Vapour density: Not determined

Relative density: Not determined

Ink 30 0.98

Ink 32 1.073

Ink 34 1.142

Ink 36 Not determined

Ink 38 1.169

Ink 40 Not determined

Ink 42 1.175

Ink 44 1.187

Ink 46 Not determined

Solubility: Soluble in water

Distribution coefficient: Not determined
n-Octanol/water :

Safety Data Sheet pursuant to Directive (EC) No. 1907/2006

Prepared on: 2021-03-19

Revised on:

Valid from: 03/2021

Version: 1

Replaces version: -

Not determined

Spontaneous ignition temperature: Not applicable

Decomposition temperature: Not determined

Viscosity: Not determined

Explosive properties: Not determined

Oxidising properties: Not determined

9.2 Other data

Surface tension 30 - 48 mN/m at 20 °C

Section 10: Stability and reactivity

10.1 Reactivity

No data available.

10.2 Chemical stability

Under regular ambient conditions (room temperature, 1013hPa), the test ink is chemically stable.

10.3 Risk of hazardous reactions

When used as intended, no hazardous reactions are to be expected.

10.4 Conditions to be avoided

Heat, flames, sparks and hot surfaces

10.5 Incompatible materials

Strong oxidizing agents, strong acids

10.6 Hazardous decomposition products

Hazardous decomposition products may be generated in case of fire. – Carbon oxides
No other decomposition products – No data available

Safety Data Sheet pursuant to Directive (EC) No. 1907/2006

Prepared on: 2021-03-19

Revised on:

Valid from: 03/2021

Version: 1

Replaces version: -

Section 11: Toxicology

11.1 Information on toxicological effects

Acute toxicity

Dimethyl ether; CAS No. 34590-94-8

LD₅₀ (oral, rat): 5,000 mg/kg (published value, ECHA)

Glycerine, CAS No. 56-81-5

LD₅₀ (oral, rat): 12,600 mg/kg (literature value) ^[1]

ATE_{mix} LD50 oral - rat

Ink 30	5,300mg/kg
Ink 32	6,200mg/kg
Ink 34	9,000mg/kg
Ink 36	20,000mg/kg
Ink 38	31,800mg/kg
Ink 40	38,400mg/kg
Ink 42	47,600mg/kg
Ink 44	55,500mg/kg
Ink 46	90,900mg/kg
Ink 48	142,800mg/kg

[1] Federation Proceedings, Federation of American Societies for Experimental Biology. Vol. 4, Pg. 142, 1945

Dimethyl ether; CAS No. 34590-94-8

LD₅₀ (by skin, rabbit): 9,510 mg/kg (published value, ECHA)

Glycerine, CAS No. 56-81-5

LD₅₀ (by skin, rabbit): >10,000 mg/kg (literature value) ^[2]

ATE_{mix} LD50 by skin - rabbit

Ink 30	10,100mg/kg
Ink 32	11,800mg/kg
Ink 34	17,200mg/kg
Ink 36	38,000mg/kg
Ink 38	60,500mg/kg
Ink 40	73,100mg/kg
Ink 42	90,500mg/kg
Ink 44	105,600mg/kg
Ink 46	172,900mg/kg
Ink 48	271,700mg/kg

[2] BIOFAX Industrial Bio-Test Laboratories, Inc., Data Sheets. Vol. 9-4/1970

Burning/irritating effect on the skin

The mixture has not been classified. The mixture does not contain any substances classified as skin irritant.

Severe eye damage/irritation

The mixture has not been classified. The mixture does not contain any substances classified as eye irritant.

Safety Data Sheet pursuant to Directive (EC) No. 1907/2006

Prepared on: 2021-03-19

Revised on:

Valid from: 03/2021

Version: 1

Replaces version: -

Sensitising of the respiratory tract/skin

The mixture has not been classified. The mixture does not contain any substances classified as sensitising.

Germ cell mutagenicity

The mixture has not been classified. The mixture does not contain any substances classified as mutagenic.

Carcinogenicity

The mixture has not been classified. The mixture does not contain any substances classified as carcinogenic.

Toxicity to reproduction

The mixture has not been classified. The mixture does not contain any substances classified as toxic to reproduction.

Specific target organ systemic toxicity with single exposure

The mixture has not been classified. The mixture contains no substances classified as specifically target organ systemic toxic with single exposure.

Specific target organ systemic toxicity with multiple exposure

The mixture has not been classified. The mixture contains no substances classified as specifically target organ systemic toxic with multiple exposure.

Aspiration hazard

The mixture has not been classified.

Section 12: Ecological information

12.1 Toxicity

Dimethyl ether; CAS No. 34590-94-8

Toxicity to fish (LC50, 96h) 1-10 g/L

Toxicity to invertebrate aquatic animals (LC50, 72h) 1 g/L
(NOEC, 22 days) 500 µg/L

Toxicity to algae (EC50, 72h) 969 mg/L
(NOEC, 72h) 969 mg/L

Glycerine, CAS No. 56-81-5

Toxicity to fish (LC50, 96h) 54 g/L

Toxicity to invertebrate aquatic animals (EC50, 24h) 10 g/L

12.2 Persistence and degradability

Biological aerobic – exposition time 2 - 28 days
degradability Result: 76 - 90% - Readily biodegradable.
Notes: (ECHA)

12.3 Bioaccumulative potential

No data available.

12.4 Mobility in the soil

No data available.

12.5 Results of PBT and vPvB assessment

In accordance with the available data, the criteria for classification as PBT or vPvB are not met

Safety Data Sheet pursuant to Directive (EC) No. 1907/2006

Prepared on: 2021-03-19

Revised on:

Valid from: 03/2021

Version: 1

Replaces version: -

12.6 Other adverse effects

No information available

Section 13: Disposal considerations

13.1 Waste treatment methods

Have residual volumes and non-reusable solutions disposed of by a recognized disposal company.

Treatment of contaminated packages

Rinse glass bottle and dispose of with waste glass. Dispose of the rinse fluid in the same way as of the mixture. Recommended cleaning agent: water

Waste code according to List of Wastes Regulation (LoW)

Discuss the exact waste code with the waste disposal contractor.

Section 14: Transport information

14.1 UN number

-

14.2 UN proper shipping name

ADR/RID

-

IMDG Code / ICAO-TI / IATA-DGR

-

14.3 Transport hazard classes

-

14.4 Packing group

-

14.5 Environmental hazards

Identification of environmentally hazardous substances

ADR/RID / IMDG code / ICAO-TI / IATA-DGR: yes / no

Marine Pollutant: yes / no

14.6 Special precautions for user

-

14.7 Transport in bulk according to Appendix II of the MARPOL Convention and the IBC Code

Contamination category (X, Y or Z): -

Vessel type (1, 2 or 3): -

Section 15: Regulatory information

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

Safety Data Sheet pursuant to Directive (EC) No. 1907/2006

Prepared on: 2021-03-19

Revised on:

Valid from: 03/2021

Version: 1

Replaces version: -

National laws

Water hazard class

WGK: 1, Slightly hazardous to water pursuant to AwSV Annex 1 No. 5

ID no. glycerine: 116

ID no. dimethyl ether: 5,087

Solvents Regulation (31. BImSchV)

VOC ratio: 0%

Other relevant regulations

Protection measures pursuant to TRGS 500 have been complied with.

Storage class pursuant to TRGS 510: 10 (Flammable liquids)

15.2 Chemical safety assessment

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

Section 16: Other data

Revisions compared to last version

No revisions made

Literature references and sources for data

Regulations

REACH Directive (EC) No. 1907/2006, last modified by Regulation (EU) 2017/1000

CLP Directive (EC) No. 1272/2008, last modified by Regulation (EU) 2017/776

Internet

[GESTIS-Stoffdatenbank \(dguv.de\)](https://gestis-stoffdatenbank.dguv.de)

www.baua.de

www.gischem.de

www.echa.europa.eu/en/candidate-list-table

Wording of the hazard statements and/or safety statements referred to in Sections 2 to 15

-

Information on training

Working with this hazardous substance does not require any mandatory training.

Please contact Diener electronic for information on proper handling of these test inks.

Safety Data Sheet pursuant to Directive (EC) No. 1907/2006

Prepared on: 2021-03-19

Revised on:

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Version: 1

Replaces version: -

Legend

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
AwSV	German Ordinance on Installations for the Handling of Substances Hazardous to Water
BImSchV	German Air Pollution Control Act
CAS	C hemical A bstracts S ervice
DIN	Standard by D eutsches I nstitut für N ormung
EC	Effective Concentration
EC	E uropean C ommunity
EN	European Standard
IATA-DGR	I nternational A ir T ransport A ssociation- D angerous G oods R egulations
IBC Code	International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
ICAO-TI	I nternational C ivil A viation O rganization- T echnical I nstructions
IMDG Code	International M aritime Code for D angerous G oods
ISO	Standard by I nternational S tandards O rganization
IUCLID	I nternational U niform C hemical I nformation D atabase
LC	Lethal Concentration
LD	L ethal D ose
log Kow	octanol-water partition coefficient
MARPOL	International Convention for the Prevention of Pollution from Ships
OECD	O rganisation for E conomic C o-operation and D evelopment
PBT	P ersistent, b ioaccumulative, t oxic
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
TRGS	Technical Rules for Hazardous Substances
UN	U nited N ations
VOC	V olatile O rganic C ompounds
vPvB	very persistent and very bio-accumulative
VwVwS	German Administrative Regulation Regarding Water Pollutants
WGK	Water Hazard Class

Additional information

Disclaimer

To our best knowledge, the specifications in this Safety Data Sheet correspond to the state of know-how at the time of printing. The information is intended to provide guidance on the safe handling of the product specified in this Safety Data Sheet during storage, processing, transport and disposal. The information cannot be applied to other products. Insofar as the product is mixed, blended or processed with other materials or subjected to treatment, the information in this Safety Data Sheet cannot be transferred to the new material thus produced, unless expressly stated otherwise herein.