

REA JET

REA Elektronik GmbH

GB - EN

Revision date: 22.02.2017

1.1. Product identifier

TKDK-SW 010

Use of the substance/mixture

Printing ink for use in industrial DOD inkjet printers

Uses advised against

This product is neither approved nor suitable for any other industrial, commercial or private use by the consumer other than the above identified use.

1.3. Details of the supplier of the safety data sheet

Company name: **REA Elektronik GmbH**

Street: Teichwiesenstraße 1
Place: D-64367 Mühlital - Waschenbach
Telephone: +49 (0) 6154 - 638 0
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e-mail: reainfo@rea.de
Internet: www.reajet.de

Contact person: Hotline Inkjet
+ 49 (0) 6154 - 638 1111

Responsible Department: Email: RJ-Service@rea.de

1.4. Emergency telephone
number:

Tel.: + + 49 (0) 6131 - 19240

Toxicological information center (Mainz / Germany)

Further Information

You should contact a doctor or a toxicological information centre if you suspect poisoning . The toxicological information centre provides free medical advice in the event of poisoning or a suspicion of poisoning to everyone around the clock.

Important questions for EMERGENCY:

- Who: - age, weight, sex of the person concerned, telephone number .: for recall.
- What: - All you can say about the involved agents.
- How much: - Try to estimate the maximum possible intake.
- When: - Try to get the time elapsed since the incident time estimate.
- What else: - First observed symptoms? First Measures taken?

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Hazard categories:

Flammable liquid: Flam. Liq. 2

Serious eye damage/eye irritation: Eye Irrit. 2

Specific target organ toxicity - single exposure: STOT SE 3

Hazardous to the aquatic environment: Aquatic Chronic 3

Hazard Statements:

Highly flammable liquid and vapour.

Causes serious eye irritation.

May cause drowsiness or dizziness.

Harmful to aquatic life with long lasting effects.

2.2. Label elements

Regulation (EC) No. 1272/2008

Hazard components for labelling

butanone; ethyl methyl ketone

1-methoxy-2-propanol; monopropylene glycol methyl ether

propan-2-ol; isopropyl alcohol; isopropanol

Signal word:

Danger

Pictograms:



Hazard statements

H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statements

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P235	Keep cool.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice/attention.

2.3. Other hazards

In principle all chemicals are particularly dangerous. Therefore they are to be handled only by specially trained personnel with the necessary care. The disposal of this product requires the expertise resp. an annual instruction according to ChemVerbotsV.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

Mixture of organic solvents, colorants, binders and additives.

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according to Regulation (EC) No 1907/2006

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Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification according to Regulation (EC) No. 1272/2008 [CLP]			
78-93-3	butanone; ethyl methyl ketone			80 - < 85 %
	201-159-0	606-002-00-3		
	Flam. Liq. 2, Eye Irrit. 2, STOT SE 3; H225 H319 H336 EUH066			
trade secret	Dye			5 - < 10 %
	Aquatic Chronic 2; H411			
107-98-2	1-methoxy-2-propanol; monopropylene glycol methyl ether			1 - < 5 %
	203-539-1	603-064-00-3		
	Flam. Liq. 3, STOT SE 3; H226 H336			
9004-70-0	Cellulosenitrat < 12,6 nitrogen			1 - < 5 %
	-			
	Expl. 1.1; H201			
108-10-1	4-methylpentan-2-one, isobutyl methyl ketone			1 - < 5 %
	203-550-1	606-004-00-4		
	Flam. Liq. 2, Acute Tox. 4, Eye Irrit. 2, STOT SE 3; H225 H332 H319 H335 EUH066			
67-63-0	propan-2-ol; isopropyl alcohol; isopropanol			1 - < 5 %
	200-661-7	603-117-00-0		
	Flam. Liq. 2, Eye Irrit. 2, STOT SE 3; H225 H319 H336			

Full text of H and EUH statements: see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove contaminated, saturated clothing immediately. If victim is at risk of losing consciousness, position and transport on their side.

After inhalation

Remove casualty to fresh air and keep warm and at rest. If breathing is irregular or stopped, administer artificial respiration. Seek medical attention if problems persist.

After contact with skin

After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water and soap. Prolonged or repeated skin contact may cause removal of natural fat from the skin resulting in dermatitis (skin inflammation). Use protective skin cream before handling the product. In case of skin irritation, consult a physician.

After contact with eyes

If product gets into the eye, keep eyelid open and rinse immediately with large quantities of water, for at least 5 minutes. Subsequently consult an ophthalmologist. Remove contact lenses, if present and easy to do. Continue rinsing.

After ingestion

Keep at rest. Rinse mouth thoroughly with water. Let water be drunk in little sips (dilution effect). Do NOT induce vomiting. Aspiration hazard. Do not give fatty oils and milk. Do not allow a neutralisation agent to be drunk. Call a physician immediately.

4.2. Most important symptoms and effects, both acute and delayed

SECTION 2: Hazards identification & SECTION 11: Toxicological information

4.3. Indication of any immediate medical attention and special treatment needed

There are no data available on the mixture itself.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

In case of fire, use sand, extinguishing powder or alcohol resistant foam. Water fog. Atomized water.

Unsuitable extinguishing media

High power water jet.

5.2. Special hazards arising from the substance or mixture

Carbon monoxide. CO Carbon dioxide (CO₂). Vapours may form explosive mixtures with air. Reignition possible over considerable distance.

5.3. Advice for firefighters

Wear a self-contained breathing apparatus and chemical resistant suit.

Additional information

Use water spray jet to protect personnel and to cool endangered containers. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Provide fresh air. Avoid contact with skin and eyes. Wear suitable protective clothing and eye/face protection. If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn. The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, closed-circuit breathing apparatus must be used!

6.2. Environmental precautions

Do not allow to enter into surface water or drains. Due to danger of explosion, prevent leakage of vapours into cellars, flues and ditches.

6.3. Methods and material for containment and cleaning up

Provide adequate ventilation. Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Clean contaminated articles and floor according to the environmental legislation. Collect in closed and suitable containers for disposal. Treat the recovered material as prescribed in the section on waste disposal.

6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Provide adequate ventilation as well as local exhaust at critical locations. Vapours / aerosols should be extracted by suction directly at point of origin. Effective exhaust ventilation system according to 2001/59/EG (Annex 7A). See information supplied by the manufacturer. Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid contact with skin and eyes. Handle and open container with care. Keep container tightly closed.

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Advice on protection against fire and explosion

The vapours are heavier than air and can accumulate in high concentrations on the ground, in cavities, channels and cellars. In case of insufficient ventilation and/or through use, explosive/highly flammable mixtures may develop. Vapours can travel considerable distances to a source of ignition where they can ignite, flash back, or explode. Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Ensure adequate ventilation of the storage area. Keep only in the original container in a cool, well-ventilated place. Store small packages in a suitable, robust cabinet. Keep container tightly closed. Remove all sources of ignition. Recommended storage temperature: (+15 °C) - (+25 °C)

Advice on storage compatibility

Do not store together with: Oxidising agent. Technical Rule 510 note.

Further information on storage conditions

Protect against direct sunlight. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. The product is chemically stable under recommended conditions of storage, use and temperature. In case of exceeding the storage time: Product/Packaging disposal. Minimum standard for preventive measures while handling with working materials are specified in the TRGS 500.

7.3. Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m ³	fibres/ml	Category	Origin
107-98-2	1-Methoxypropan-2-ol	100	375		TWA (8 h)	WEL
		150	560		STEL (15 min)	WEL
108-10-1	4-Methylpentan-2-one	50	208		TWA (8 h)	WEL
		100	416		STEL (15 min)	WEL
78-93-3	Butan-2-one (methyl ethyl ketone)	200	600		TWA (8 h)	WEL
		300	899		STEL (15 min)	WEL
67-63-0	Propan-2-ol	400	999		TWA (8 h)	WEL
		500	1250		STEL (15 min)	WEL

Biological Monitoring Guidance Values (EH40)

CAS No	Substance	Parameter	Value	Test material	Sampling time
108-10-1	4-methylpentan-2-one	4-methylpentan-2-one	20 µmol/L	urine	Post shift
78-93-3	Butan-2-one	butan-2-one	70 µmol/L	urine	Post shift

Additional advice on limit values

Technical measures and the application of suitable work processes have priority over personal protection equipment.

8.2. Exposure controls

Protective and hygiene measures

Keep away from food, drink and animal feedingstuffs. Remove contaminated, saturated clothing immediately. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin and eyes. Protect skin by using skin protective cream. Draw up and observe skin protection programme. Wash hands before breaks and after work. When using do not eat, drink

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or smoke.

Eye/face protection

Tightly sealed safety glasses. DIN EN 166

Hand protection

Wear protective gloves. Recommended material: Butyl caoutchouc (butyl rubber) Thickness of the glove material \geq 0,5 mm. DIN EN 374. NR (natural rubber, natural latex) limited resistance using a maximum of 10 minutes. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The required protective gloves have to be specified by the glove material and the penetration time of the glove material depending on strength and duration of dermal exposition.

Skin protection

Wear suitable protective clothing.

Respiratory protection

Extended inhalation at levels above the workplace limit value can cause irreversible damage to the lungs. If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn. Observe the wear time limits according GefStoffV in combination with the rules for using respiratory protection apparatus (BGR 190).

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	liquid
Colour:	black
Odour:	like: Solvent

Test method

pH-Value (at 20 °C):	not determined	DIN 19268
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Changes in the physical state

Initial boiling point and boiling range:	79 - 110 °C	DIN 51751
Flash point:	-5 °C	DIN 51755

Explosive properties

not Explosive. Vapours may form explosive mixtures with air.

Lower explosion limits:	1,8 vol. %	DIN 51649
Upper explosion limits:	11,5 vol. %	DIN 51649
Ignition temperature:	514 °C	DIN 51794
Vapour pressure: (at 20 °C)	105 hPa	DIN 51754
Density (at 20 °C):	0,833 - 0,835 g/cm ³	ISO 2811

Solubility in other solvents

mixable with most organic solvent cleaners

Viscosity / dynamic: (at 20 °C)	0,9 - 1,2 mPa·s	DIN 53019
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SECTION 10: Stability and reactivity

10.2. Chemical stability

The mixture is chemically stable under recommended conditions of storage, use and temperature.

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10.3. Possibility of hazardous reactions

May form explosive peroxides. In use may form flammable/explosive vapour-air mixture. Vapours of flammable solvents can accumulate in the gas phase of closed container, especially during heat treatment. Therefore keep away from fire and sources of ignition.

10.4. Conditions to avoid

Protect from sunlight. Store at temperatures not exceeding 35 °C/95 °F.

10.5. Incompatible materials

Keep away from strong acids, leachates, heavy metal salts and reducing materials.

10.6. Hazardous decomposition products

Carbon monoxide.(CO), Carbon dioxide (CO2). Peroxides

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

Based on available data, the classification criteria are not met.

CAS No	Chemical name				
	Exposure route	Method	Dose	Species	Source
78-93-3	butanone; ethyl methyl ketone				
	oral	LD50	3300 mg/kg	rat	
	dermal	LD50	5000 mg/kg	rabbit	
	inhalative (4 h) vapour	LC50	10000 mg/l	rat	
107-98-2	1-methoxy-2-propanol; monopropylene glycol methyl ether				
	oral	LD50	> 5000 mg/kg	Rat	IUCLID
	dermal	LD50	11000 mg/kg	Rabbit	
108-10-1	4-methylpentan-2-one, isobutyl methyl ketone				
	oral	LD50	2080 mg/kg	Rat	RTECS
	dermal	LD50	>16000 mg/kg	Rabbit	IUCLID
	inhalative vapour	ATE	11 mg/l		
	inhalative aerosol	ATE	1,5 mg/l		
67-63-0	propan-2-ol; isopropyl alcohol; isopropanol				
	oral	LD50	4570 mg/kg	rat	
	dermal	LD50	13400 mg/kg	rabbit	
	inhalative (4 h) vapour	LC50	30 mg/l	rat	

Irritation and corrosivity

Causes serious eye irritation.

Skin corrosion/irritation: Based on available data, the classification criteria are not met.

Sensitising effects

Based on available data, the classification criteria are not met.

STOT-single exposure

May cause drowsiness or dizziness. ((butanone; ethyl methyl ketone))

Severe effects after repeated or prolonged exposure

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

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Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

Further information

Prolonged/repetitive skin contact may cause skin defatting or dermatitis. Danger of cutaneous absorption. Inhalation causes narcotic effects/intoxication. Causes eye irritation. In case of eye contact. May cause damage to liver through prolonged or repeated exposure if inhaled. Ingestion causes nausea, weakness and central nervous system effects. Observe risk of aspiration if vomiting occurs.

SECTION 12: Ecological information

12.1. Toxicity

CAS No	Chemical name					
	Aquatic toxicity	Method	Dose	[h] [d]	Species	Source
107-98-2	1-methoxy-2-propanol; monopropylene glycol methyl ether					
	Acute fish toxicity	LC50 mg/l	4600 - 10000	96 h	Leuciscus idus	IUCLID
	Acute algae toxicity	ErC50	> 1000 mg/l	72 h	Selenastrum capricornutum	
	Acute crustacea toxicity	EC50	> 500 mg/l	48 h	Daphnia magna	IUCLID
108-10-1	4-methylpentan-2-one, isobutyl methyl ketone					
	Acute fish toxicity	LC50 mg/l	505 - 540	96 h	Pimephales promelas	
	Acute algae toxicity	ErC50	400 mg/l	96 h	Selenastrum capricornutum	
	Acute crustacea toxicity	EC50	170 mg/l	48 h	Daphnia magna	IUCLID

12.2. Persistence and degradability

Product is partially biodegradable. Significant residues remain.

12.3. Bioaccumulative potential

No data available

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
78-93-3	butanone; ethyl methyl ketone	0,29
107-98-2	1-methoxy-2-propanol; monopropylene glycol methyl ether	-0,437
108-10-1	4-methylpentan-2-one, isobutyl methyl ketone	1,31
67-63-0	propan-2-ol; isopropyl alcohol; isopropanol	0,05

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Other adverse effects

No data available

Further information

The ecotoxicological properties of this mixture are determined by the ecotoxicological properties of the single components (see section 3).

SECTION 13: Disposal considerations

13.1. Waste treatment methods

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Advice on disposal

Dispose of waste according to applicable legislation. Do not empty into drains; dispose of this material and its container in a safe way. Consult the appropriate local waste disposal expert about waste disposal. The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

Waste disposal number of waste from residues/unused products

080312 WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS; wastes from MFSU of printing inks; waste ink containing hazardous substances
Classified as hazardous waste.

Waste disposal number of used product

080312 WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS; wastes from MFSU of printing inks; waste ink containing hazardous substances
Classified as hazardous waste.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number:

UN 1263

14.2. UN proper shipping name:

PAINT (including paint, lacquer, enamel, stain, shellac solutions, varnish, polish, liquid filler and liquid lacquer base)

14.3. Transport hazard class(es):

3

14.4. Packing group:

II

Hazard label:

3



Classification code:

F1

Special Provisions:

163 640D 650

Limited quantity:

5 L

Transport category:

2

Hazard No:

33

Tunnel restriction code:

D/E

Other applicable information (land transport)

E2

Inland waterways transport (ADN)

14.1. UN number:

UN 1263

14.2. UN proper shipping name:

PAINT (including paint, lacquer, enamel, stain, shellac solutions, varnish, polish, liquid filler and liquid lacquer base)

14.3. Transport hazard class(es):

3

14.4. Packing group:

II

Hazard label:

3



Classification code:

F1

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Special Provisions: 163 640D 650

Limited quantity: 5 L

Other applicable information (inland waterways transport)

E2

Marine transport (IMDG)

14.1. UN number: UN 1263

14.2. UN proper shipping name: PAINT (including paint, lacquer, enamel, stain, shellac solutions, varnish, polish, liquid filler and liquid lacquer base)

14.3. Transport hazard class(es): 3

14.4. Packing group: II

Hazard label: 3



Special Provisions: 163

Limited quantity: 5 L

EmS: F-E, S-E

Other applicable information (marine transport)

E2

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number: UN 1263

14.2. UN proper shipping name: PAINT (including paint, lacquer, enamel, stain, shellac solutions, varnish, polish, liquid filler and liquid lacquer base)

14.3. Transport hazard class(es): 3

14.4. Packing group: II

Hazard label: 3



Special Provisions: A72

Limited quantity Passenger: 1 L

IATA-packing instructions - Passenger: 353

IATA-max. quantity - Passenger: 5 L

IATA-packing instructions - Cargo: 364

IATA-max. quantity - Cargo: 60 L

Other applicable information (air transport)

E2

Passenger-LQ: Y341

SECTION 15: Regulatory information

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

EU regulatory information

2010/75/EU (VOC): 92,651 % (771,782 g/l)

2004/42/EC (VOC): 92,651 % (771,782 g/l)

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National regulatory information

Employment restrictions:

Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers. Observe employment restrictions for women of child-bearing age.

Water contaminating class (D):

2 - water contaminating

Additional information

For use in industrial installations or professional treatment only.

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 2,11.

Abbreviations and acronyms

DOD Drop-on-Demand Printer

Relevant H and EUH statements (number and full text)

H201	Explosive; mass explosion hazard.
H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
EUH066	Repeated exposure may cause skin dryness or cracking.

Further Information

The information is based on present level of our knowledge. It does not, however, give assurances of product properties and establishes no contract legal rights.

The receiver of our product is singularly responsible for adhering to existing laws and regulations.

The product should only be handled by persons over the age of 18, who were informed sufficiently about the dangerous nature of the product and about the necessary safety precautions.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)