

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 29.01.2014

Revision: 28.01.2014

SECTION 1: Identification of the substance/mixture and of the company/undertaking

- **Trade name:** 1,3-dioxolane
- **CAS Number:**
646-06-0
- **EC number:**
211-463-5
- **Index number:**
605-017-00-2
- **Registration number** 01-2119490744-29-0003
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
- **Sector of Use** SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
- **Product category**
PC9a Coatings and paints, thinners, paint removers
PC32 Polymer preparations and compounds
PC35 Washing and cleaning products (including solvent based products)
- **Process category**
PROC1 Use in closed process, no likelihood of exposure
PROC2 Use in closed, continuous process with occasional controlled exposure
PROC3 Use in closed batch process (synthesis or formulation)
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises
PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC10 Roller application or brushing
PROC15 Use as laboratory reagent
- **Environmental release category**
ERC2 Formulation of preparations
ERC6c Industrial use of monomers for manufacture of thermo-plastics
ERC7 Industrial use of substances in closed systems
ERC8a Wide dispersive indoor use of processing aids in open systems
ERC8c Wide dispersive indoor use resulting in inclusion into or onto a matrix
ERC10a Wide dispersive outdoor use of long-life articles and materials with low release
- **Article category** AC 02: Other (intended to be released): not specified
- **Application of the substance / the preparation** Laboratory chemicals
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Kairav Chemofarbe Industries
Ltd 502, flix, LBS Marg,
Opposite Asian Paints,
Bhandup(w) Mumbai 400078
- **Further information obtainable from:**
Ph: 022-25968361, 25962453
Fax: 022-25958586
- **1.4 Emergency telephone number:**
Contact details of European importer
Emergency telephone number: Telephone number of EU importer:
Opening hours:
Other Comments (e.g. language(s) of the phone service): English



SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS02 flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.

(Contd. on page 2)

IN

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 29.01.2014

Revision: 28.01.2014

Trade name: 1,3-dioxolane

(Contd. of page 1)

- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



F; Highly flammable

R11: Highly flammable.

- **Information concerning particular hazards for human and environment: Not applicable.**

2.2 Label elements

- **Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labelled according to the CLP regulation.

- **Hazard pictograms**



GHS02

- **Signal word Danger**

- **Hazard statements**

H225 Highly flammable liquid and vapour.

- **Precautionary statements**

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

P241 Use explosion-proof electrical/ventilating/lighting/equipment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P240 Ground/bond container and receiving equipment.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **2.3 Other hazards**

- **Results of PBT and vPvB assessment**

- **PBT: Not applicable.**

- **vPvB: Not applicable.**

SECTION 3: Composition/information on ingredients

- **3.1 Chemical characterization: Substances**

- **CAS No. Description**

646-06-0 1,3-dioxolane

- **Identification number(s)**

- **EC number: 211-463-5**

- **Index number: 605-017-00-2**

- **Additional information:**

Molecular formula: C3H6O2 Molecular

weight range: 74.0785 Degree of purity:

>99.1 - < 99.9% w/w

- **SVHC The substance is not in the list of SVHC substances**

SECTION 4: First aid measures

- **4.1 Description of first aid measures**

- **After inhalation:**

Ensure supply of fresh air. If symptoms persist, call a physician. If breathing is irregular or stopped, administer artificial respiration.

- **After skin contact: Wash off with soap and water**

- **After eye contact:**

In case of contact with eyes rinse immediately with plenty of water and seek medical advice

(Contd. on page 3)

IN

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 29.01.2014

Revision: 28.01.2014

Trade name: 1,3-dioxolane

(Contd. of page 2)

- **After swallowing:** Gently wipe or rinse the inside of the mouth with water. Take medical treatment.
- **4.2 Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:** Foam carbon dioxide, dry chemicals, water spray jet.
- **For safety reasons unsuitable extinguishing agents:** High volume water jet
- **5.2 Special hazards arising from the substance or mixture**
In case of fires, hazardous combustion gases are formed: carbon monoxide (CO)
- **5.3 Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Keep away from sources of ignition - No smoking. provide adequate ventilation
- **6.2 Environmental precautions:** Do not let product enter drains
- **6.3 Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
- **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling** Take precautionary measures against electrostatic loading
- **Information about fire - and explosion protection:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Use explosion-proof equipment/fittings and non-sparkling tools. Emergency cooling must be provided for the eventuality of a fire in the vicinity
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
- **Storage class:**
VCI storage category
3A: Flammable liquid substances
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**
- **Ingredients with limit values that require monitoring at the workplace:** Not required.

(Contd. on page 4)

IN

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 29.01.2014

Revision: 28.01.2014

Trade name: 1,3-dioxolane

(Contd. of page 3)

· **DNELs**1) **DNELs for workers: Long-term - systemic effects:**

Dermal : 4.1 mg/kg bw/day

Inhalation : 19 mg/m³2) **DNELs for the general****population Long-term - systemic****effects: Dermal : 0.8 mg/kg bw/day****Inhalation : 5.7 mg/m³****Oral : 75 mg/kg bw/day**· **PNECs****Predicted No Effect Concentration****(PNEC) 1) PNEC water**

PNEC aqua (freshwater): 19.7 mg/L

PNEC aqua (marine water): 1.97 mg/L

PNEC aqua (intermittent releases): 0.95

mg/L 2) **PNEC sediment**

PNEC sediment (freshwater): 77.7 mg/kg sediment dw

PNEC sediment (marine water) : 7.77 mg/kg sediment

dw 3) **PNEC soil**

PNEC soil: 2.62 mg/kg soil dw

4) **PNEC sewage treatment**

plant PNEC STP: 1 mg/L

· **Additional information:** The lists valid during the making were used as basis.· **8.2 Exposure controls**· **Personal protective equipment:**· **General protective and hygienic measures:** Wash hands before breaks and at the end of work.· **Respiratory protection:** Short term: filter type A· **Protection of hands:**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Rubber gloves

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**

Tightly sealed goggles

SECTION 9: Physical and chemical properties· **9.1 Information on basic physical and chemical properties**· **General Information**· **Appearance:****Form:**

Liquid

Colour:

Colourless

(Contd. on page 5)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 29.01.2014

Revision: 28.01.2014

Trade name: 1,3-dioxolane

(Contd. of page 4)

· Odour:	Odourless
· pH-value:	Not determined.
· Change in condition Melting point/Melting range:	-95 °C (at 101.3 kPa)
Boiling point/Boiling range:	76 °C (at 101.3 kPa)
· Flash point:	≤ 2.5 °C (at 1026.2 hPa)
· Flammability (solid, gaseous):	highly flammable
· Ignition temperature:	250 °C (at 1013 hPa)
· Danger of explosion:	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· Explosion limits: Oxidizing properties	1, 3-Dioxolane is considered to have no oxidizing properties based on the structure.
· Vapour pressure at 20 °C:	10100 Pa
· Density at 20 °C:	1.06 g/cm ³
· Solubility in / Miscibility with water at 20 °C:	500 g/l
· Partition coefficient (n-octanol/water) at 20 °C:	0.37 log POW
· Viscosity: Dynamic at 20 °C:	< 10 mPas
· 9.2 Other information	1) Surface Tension : 71.7 mN/m at 20 °C and 1000 mg/L 2) Dissociation constant : 1,3-Dioxolane has no pKa values within the range of 2 to 11. 3) Viscosity : 1,3 -Dioxolane has no pKa values within the range of 2 to 11.

SECTION 10: Stability and reactivity

- **10.1 Reactivity**
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions** Formation of explosive gas/air mixtures
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values relevant for classification:**

Oral	LD50	5200 mg/kg bw (rat(Sprague-Dawley)male/female) (equivalent or similar to OECD Guideline 401)
		> 2000 mg/kg bw (rat) (OECD Guideline 401)
Inhalative	LC50/4 h	68.4 mg/L air (rat(Sprague-Dawley)male/female) (OECD Guideline 403)

(Contd. on page 6)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 29.01.2014

Revision: 28.01.2014

Trade name: 1,3-dioxolane

(Contd. of page 5)

- **Primary irritant effect:**

- **on the skin:**

Method :

rabbit (New Zealand White)

Coverage: occlusive (left side abraded, right side intact)

Vehicle: unchanged (no vehicle)

Results :

inconclusive (reversibility not determined)

Erythema score: 1.4 of max. 4 (mean) (not fully reversible within: 72

hours) Inference : Not irritating

- **on the eye:**

Method :

rabbit (New Zealand White)

Vehicle: unchanged (no

vehicle) Results:

irritating

Cornea score:

0 - ≤ 4 of max. 4 (mean) (Time point: 24-72h) (not fully reversible within: 72h)

Iris score:

0 - ≤ 1 of max. 1 (mean) (Time point: 24-72h) (fully reversible)

Conjunctivae score:

0 - ≤ 3 of max. 3 (mean) (Time point: 24-72h) (not fully reversible within: 72h)

- **Sensitization:**

Method:

mouse (CBA) female

Local lymph node assay

OECD Guideline 429 (Skin Sensitisation: Local Lymph Node

Assay) EU Method B.42 (Skin Sensitisation: Local Lymph Node

Assay) EPA OPPTS 870.2600 (Skin Sensitisation)

Result :

not sensitising

Stimulation index: Test substance $SI \pm SEM$

0% (vehicle) 1.0 ± 0.2

25% 0.7 ± 0.1

50% 0.8 ± 0.2

100% 1.6 ± 0.4

- **Repeated dose toxicity**

Repeated dose toxicity: oral

Method:

rat (Sprague Dawley Crl:CD® (SD)BR)

male/female subacute (oral: gavage)

Vehicle: one control group received the vehicle corn oil, another control group was given water

Exposure: Daily oral dosing by gavage for 14 days. Dose levels were 75, 250, 750 and 2000

mg/kg bw/day. (Once daily.)

Results :

NOAEL: 75 mg/kg bw/day

(nominal) (male) (reduced body weight gain and reduced platelet count)

Repeated dose toxicity:

inhalation Method :

rat (Fischer 344) male/female

subchronic (inhalation:

vapour) (whole body)

Vehicle: unchanged (no vehicle)

Exposure: 6 hours/day, 5 days/week, for 13 weeks (6 hours/day, 5 days/week, for 13

weeks) NOAEC: 298 ppm

(analytical) (male/female)

(The NOAEC was based on reduced WBC and lymphocyte count and increased platelet count in males and

(Contd. on page 7)

IN

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 29.01.2014

Revision: 28.01.2014

Trade name: 1,3-dioxolane

(Contd. of page 6)

females, and reduced spleen weights in females, all at 1000 ppm.)

Repeated dose toxicity: dermal

For the end point repeated dose toxicity, information on the oral route and the inhalation route is available. Information on the dermal route is not required, since route-to-route extrapolation can be used in order to cover the dermal route of exposure.

· **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**

Carcinogenicity:

1,3 -Dioxolane is not considered a systemic carcinogen and does not need to be classified for this endpoint (DSD and CLP).

Mutagenicity :

Method:

bacterial reverse mutation assay (e.g. Ames test) (gene mutation)

Organism : *Salmonella typhimurium*: TA- 1535, TA-1537, TA-1538, TA-98 & TA-100 (met. act.: with and without)

Test concentrations:

0.005, 0.01, 0.1, 1, 5 and 10 µL/plate for TA- 1535, TA-1537 and TA-1538; 0.005, 0.01, 0.1, 1, 5, 10, 25 and 50 µL/plate for TA-98 and TA-100

Test results:

negative for all strains ; met. act.: with and without ; cytotoxicity: no, but tested up to limit concentrations ; vehicle controls valid: yes; positive controls valid: yes

Toxicity for reproduction:

Studies on developmental

toxicity Method:

rat (CrI:CD®BR

VAF/Plus®) oral: gavage

Dose levels were 0, 125, 250, 500 and 1000 mg/kg bw/day, administered from day 6 through 15 of presumed gestation. (actual ingested)

Vehicle: corn oil

Results :

NOAEL (developmental toxicity): 250 mg/kg bw/day (nominal) (The developmental NOAEL based on reduced ossification (increased incidence of bifid centra in thoracic vertebrae and reduced number of ossified metacarpals per foetus) is 250 mg/kg bw/d. The maternal NOAEL is also 250 mg/kg based on reduced food consumption and body weight gain.)

SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:**

EC50 (3 h) (static)	> 100 mg/L (activated sludge, domestic)
EC50 (48 h)	:> 772 mg/L (<i>Daphnia magna</i>)
EC50 (72 h) (static)	:> 877 mg/L (<i>Selenastrum capricornutum</i> (Algae))
LC50 (96 h)	:> 95.4 mg/L (<i>Lepomis macrochirus</i>)
NOEC (30 d)	546.3 mg/L (Fish)

· **12.2 Persistence and degradability**

Biodegradation in water:

Test type: ready biodegradability

activated sludge, domestic, nonadapted

OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test) (Also performed according to EEC method C.4-E.)

Result : not readily biodegradable

% Degradation of test substance: 3.7 after 35 d (O₂ consumption)

· **12.3 Bioaccumulative potential** No further relevant information available.

(Contd. on page 8)

IN

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 29.01.2014

Revision: 28.01.2014

Trade name: 1,3-dioxolane


(Contd. of page 7)

- **12.4 Mobility in soil**
Soil Adsorption coefficient :
Koc at 20 °C: 3.461
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

SECTION 14: Transport information

· 14.1 UN-Number	
· ADR, IMDG, IATA	UN1166
· 14.2 UN proper shipping name	
· ADR	1166 DIOXOLANE
· IMDG, IATA	DIOXOLANE
· 14.3 Transport hazard class(es)	
· ADR, IMDG, IATA	
	
· Class	3 Flammable liquids.
· Label	3
· 14.4 Packing group	
· ADR, IMDG, IATA	II
· 14.5 Environmental hazards:	
· Marine pollutant:	No
· 14.6 Special precautions for user	Warning: Flammable liquids.
· Danger code (Kemler):	33
· EMS Number:	F-E,S-D
· 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· ADR	
· Limited quantities (LQ)	1L

(Contd. on page 9)

IN

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 29.01.2014

Revision: 28.01.2014

Trade name: 1,3-dioxolane

(Contd. of page 8)

· Transport category	2
· Tunnel restriction code	D/E
· UN "Model Regulation":	UN1166, DIOXOLANE, 3, II

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Labelling according to Regulation (EC) No 1272/2008**
- **Hazard pictograms** Please refer section 2
- **Signal word** Danger
- **Hazard statements** Please refer section 2
- **Precautionary statements** Please refer section 2
- **Chemical safety assessment**
The CSR has been completed
Please refer to Annex I for risk management measures and exposure scenario.
- **National regulations:**
- **Other regulations, limitations and prohibitive regulations**
- **Substances of very high concern (SVHC) according to REACH, Article 57**
The substance is not listed as SVHC.
- **15.2 Chemical safety assessment:**
The CSR has been completed.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing MSDS:** Product safety department.
- **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration
(REACH) LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
- **Sources** CHEMICAL SAFETY REPORT (CSR) CAS Number: 646-06-0
- *** Data compared to the previous version altered.**
 - Section 1: Identification of the substance/preparation & of the company/undertaking.
 - Section 3: Composition/Information on Ingredients
 - Section 4: First-aid measures
 - Section 5: First-fighting measures
 - Section 6: Accidental release measures
 - Section 7: Handling and storage.
 - Section 8: Exposure controls/Personal Protection.
 - Section 9: Physical and Chemical properties.
 - Section 10: Stability and Reactivity.
 - Section 11: Toxicology Information
 - Section 12: Ecological Information
 - Section 13: Disposable consideration
 - Section 14: Transport Information
 - Section 15: Regulatory Information