Safety data sheet

COMMISSION REGULATION (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006

Printing date 14.09.2022 Version number 1 Revision: 14.09.2022

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

· **1.1 Product identifier**

· **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**
SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
SU12 Manufacture of plastics products, including compounding and conversion
SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
· **Product category**
PC9a Coatings and paints, thinners, paint removers
PC9c Finger paints
PC19 Intermediate
PC16 Heat transfer fluids
PC21 Laboratory chemicals
PC32 Polymer preparations and compounds
PC23 Leather treatment products
PC24 Lubricants, greases, release products
PC35 Washing and cleaning products (including solvent based products)
· **Process category**
PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC4 Chemical production where opportunity for exposure arises
PROC5 Mixing or blending in batch processes
PROC6 Calendering operations
PROC7 Industrial spraying
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
PROC10 Roller application or brushing
PROC12 Use of blowing agents in manufacture of foam
PROC13 Treatment of articles by dipping and pouring
PROC14 Tabletting, compression, extrusion, pelletisation, granulation

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PROC15 Use as laboratory reagent
PROC17 Lubrication at high energy conditions in metal working operations
PROC18 General greasing /lubrication at high kinetic energy conditions

· **Environmental release category**
ERC1 Manufacture of the substance
ERC2 Formulation into mixture
ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
ERC6c Use of monomer in polymerisation processes at industrial site (inclusion or not into/ onto article)
ERC7 Use of functional fluid at industrial site
ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
ERC8b Widespread use of reactive processing aid (no inclusion into or onto article, indoor)
ERC8c Widespread use leading to inclusion into/onto article (indoor)
ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
ERC10a Widespread use of articles with low release (outdoor)

· **Application of the substance / the mixture**
Used as a solvent and extractant for fats, waxes, and dyes. Used in the production of phenolic-novolak resins. Used as a monomer to produce polyacetals and a solvent for polyesters, vinyls, and epoxys. It may be used as a paint stripper.

· **1.3 Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Kairav Chemofarbe Industries Ltd
502, Filix, LBS Marg, Bhandup (West),
Mumbai- 400078,
India.

Only Representative (OR) Details
Global Product Compliance (Europe) AB,
Ideon Science Park, Scheelevägen 17,
Beta 5, 22370 Lund,
Sweden

· **Further information obtainable from:**
Phone +91 22 25968361/62
Fax +91 22 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

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SECTION 2: Hazards identification

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

flame

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

health hazard

Repr. 1B H360 May damage fertility or the unborn child.

corrosion

Eye Dam. 1 H318 Causes serious eye damage.

· **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 GHS05 GHS08

· **Signal word** Danger
· **Hazard statements**
H225 Highly flammable liquid and vapour.
H318 Causes serious eye damage.
H360 May damage fertility or the unborn child.
· **Precautionary statements**

P201	Obtain special instructions before use.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.
P405	Store locked up.

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

· **2.3 Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** The substance is not PBT.
· **vPvB:** Not a vPvB substance.

SECTION 3: Composition/information on ingredients

· **3.1 Chemical characterisation: 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 g/mol
Degree of purity: >99.1 to < 99.9% w/w

SECTION 4: First aid measures

· **4.1 Description of first aid measures**
· **General information:**
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area
If symptoms persist or in case of doubt, seek medical advice.
Remove contaminated, soaked clothing immediately and dispose of safely. Pay attention to own protection.
· **After inhalation:**
If breathed in, move person into fresh air. If not breathing, give artificial respiration.
· **After skin contact:**
In case of contact with skin, clean with soap and water.
Get medical attention if irritation develops or persists.
· **After eye contact:**
Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally.
Remove contact lenses if present and easy to do.
Consult an ophthalmologist immediately.
· **After swallowing:**
Never give anything by mouth to an unconscious person.
Do not induce vomiting

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If symptoms persist consult doctor.
· **Information for doctor:** Treat symptomatically and supportively.
· **4.2 Most important symptoms and effects, both acute and delayed**
Main symptoms: Vapours may cause irritation to the eyes, respiratory system and the skin.
· **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:**
CO2, dry chemical, foam
water spray
· **For safety reasons unsuitable extinguishing agents:** Do not use water jet.
· **5.2 Special hazards arising from the substance or mixture**
Under conditions giving incomplete combustion, hazardous gases produced may consist of
Carbon monoxide
Carbon dioxide (CO2)
Combustion gases of organic materials must in principle be graded as inhalation poisons.
· **5.3 Advice for firefighters**
· **Protective equipment:** Wear self-contained breathing apparatus (EN 133).
· **Additional information**
Cool containers / tanks with water spray.
Dike and collect water used to fight fire.

SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
Wear proptective equipment. Keep unprotected person away.
Ensure adequate ventilation
Avoid breathing vapors, mist or gas.
Avoid contact with the skin, eyes and clothing.
· **6.2 Environmental precautions:**
Do not discharge into drains, surface water, groundwater or soil
If the product contaminates rivers and lakes or drains inform respective authorities.
· **6.3 Methods and material for containment and cleaning up:**
Keep in suitable, closed containers for disposal.
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Soak up with inert absorbent material. Do not use rags, paper towels or combustible materials to clean up a spill, because spontaneous combustion can occur.

Dispose of in accordance with local regulations.

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· **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**
Handle in accordance with good industrial hygiene and safety practice.
Do not breathe dust/fumes/gas/mist/vapor.
Avoid contact with eyes, skin and clothing.
· **Information about fire - and explosion protection:**
Keep ignition sources away.Do not smoke.
Vapours are heavier than air and may spread along floors.
Take necessary action to avoid static electricity discharge. Ground and bond containers when transferring material. In case of fire, emergency cooling with water spray should be available.

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:**
Store in a cool, dry, well-ventilated area away from incompatible substances.
· **Information about storage in one common storage facility:**
Keep away from heat, sparks and flame.
Protect from moisture.
· **Further information about storage conditions:**
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Containers have to be labelled clearly and permanently.
Store in the original container as much as possible.
Keep container tightly sealed.
Vapors may form explosive mixtures with air. The pressure in sealed containers can increase under the influence of heat. Refill and handle product only in closed system. Provide sufficient air exchange and/or exhaust in work rooms.
Keep away from: Oxidizing agents, acids, bases, amines, oxygen, reducing agents
The product will oxidize in air and release heat. Oxidization creates acids and peroxides, that may lead to corrosive damages in storage and handling equipment.
· **Storage class:**
VCI storage category
3A: Flammable liquid substances
Temperature class: T3
· **7.3 Specific end use(s)** No further relevant information available.

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SECTION 8: Exposure controls/personal protection

· **8.1 Control parameters**
· **Ingredients with limit values that require monitoring at the workplace:** Not required.
· **DNELs**
1) DNELs for workers:
INHALATION Exposure
Systemic effects:
Long-term: (DNEL): 3.306 mg/m³

DERMAL Exposure
Systemic effects:
Long-term: (DNEL) 1.18 mg/kg bw/day

EYE Exposure
Medium hazard (no threshold derived)

2) DNELs for the general population
INHALATION Exposure
Systemic effects:
Long-term: (DNEL) 4.52 mg/m³

DERMAL Exposure
Systemic effects:
Long-term: (DNEL) 1.31 mg/kg bw/day

ORAL Exposure
Systemic Effects
Long-term:(DNEL): 1.31 mg/kg bw/day

EYE Exposure
Medium hazard (no threshold derived)
· **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

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· **Additional information:**
Engineering measures: General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred. Explosionproof equipment (for example fans, switches, and grounded ducts) should be used in mechanical ventilation systems.

· **8.2 Exposure controls**
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
· **Personal protective equipment:**
· **General protective and hygienic measures:**
The usual precautionary measures are to be adhered to when handling chemicals.
Wash hands before breaks and at the end of work.
Keep away from foodstuffs, beverages and feed.
Do not eat, drink, smoke or sniff while working.
Use only in an area equipped with a safety shower. Hold eye wash fountain available.
· **Respiratory protection:**
Short term: filter type A
Respirator with A filter. Full mask with above mentioned filter according to producers using requirements or self-contained breathing apparatus. Equipment should conform to EN 136 or EN 140 and EN 143.
· **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
Rubber gloves
· **Material of gloves**
Suitable material: Butyl-rubber
Type: Butoject (Company KCL) or comparable article; or refer to glove manufacturer's recommendation.
Evaluation: According to EN 374: level 3
· **Penetration time of glove material**
Material thickness: approx. 0.7 mm
Break through time: approx. 60 min
· **Eye protection:**

Tightly sealed goggles

Tightly fitting safety goggles. In addition to goggles, wear a face shield if there is a reasonable chance for splash to the face. Equipment should conform to EN 166.

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· **Body protection:**
Protective work clothing
Impervious clothing

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**	
· **General Information**	
Appearance:	Liquid
· **Form:**	Liquid
· **Colour:**	Colourless
· **Odour:**	Not determined
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/freezing point:	-90 °C (at 1014 hPa (OECD TG 102))
Initial boiling point and boiling range:	76 °C (at 1014 hPa (OECD TG 103))
· **Flash point:**	≤ 2.5 °C (at 1026.2 hPa(EU, ISO TG))
· **Flammability :**	Highly flammable.
· **Ignition temperature:**	250 °C
· **Explosive properties:**	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· **Explosion limits:**	
· **Upper:**	
Oxidising properties	No oxidising properties
· **Vapour pressure at 20 °C:**	76 mmHg (OECD TG 104, EU methodA.4)
· **Density at 20 °C:**	1.06 g/cm³ (OECD TG 109, EU methodA.3)
· **Solubility in / Miscibility with water:**	Highly soluble
· **Partition coefficient: n-octanol/water:**	-0.37 log POW
· **Viscosity:**	
Dynamic at 25 °C:	0.589 mPas

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· **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 (OECD TG 112).*

SECTION 10: Stability and reactivity

· **10.1 Reactivity** *No further relevant information available.*
· **10.2 Chemical stability** *Stable under normal conditions.*
· **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**
Avoid contact with incompatible materials.
Keep away from heat, sparks and flame.
Avoid moisture.
· **10.5 Incompatible materials:**
Oxidizing agents, acids, bases, amines, oxygen, reducing agents
· **10.6 Hazardous decomposition products:**
Hazardous decomposition products: toxic fumes of: carbon monoxide, carbon dioxide.

SECTION 11: Toxicological information

· **11.1 Information on toxicological effects**
· **Acute toxicity** *Based on available data, the classification criteria are not met.*

· **LD/LC50 values relevant for classification:**		
Oral	*LD50*	*5200 mg/kg bw (rat(Sprague-Dawley)male/female) (OECD TG 401)*
		> 2000 mg/kg bw (rat) (OECD TG 401)
Inhalative	*4 hr LC50*	*68.4 mg/L air (rat(Sprague-Dawley)male/female) (OECD TG 403)*

· **Primary irritant effect:**
· **Skin corrosion/irritation**
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

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· ***Serious eye damage/irritation***
Causes serious eye damage.
In an eye irritation study (Auletta, 1980), 1,3-dioxolane showed irritating effects on the cornea, iris and conjunctivae. Irritating effects on cornea and conjunctivae were not fully reversible at termination of the study at 72 h. An in vitro study was performed according to the OECD TG 437. 1,3-Dioxolane was applied undiluted for 10 minutes and incubated for 120 minutes. The in vitro irritancy score determined in this study (115.7) indicates that 1,3-Dioxolane causes serious eye damage.

· ***Respiratory or skin sensitisation***
Not skin sensitizing - OECD TG 429, EU method B.42 and EPA test method
The stimulation index (SI) values calculated for the substance at concentrations 25, 50 and 100% on mouse CBA female test species and were found to be 0.7, 0.8 and 1.6, respectively. Since the test substance did not elicit an SI ≥3 when tested up to 100%, 1,3 - Dioxolane is considered to be a non skin sensitizer,

· ***Additional toxicological information:***

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

· ***Germ cell mutagenicity***
Non-mutagenic
OECD TG 471 study -
The test item 1,3-Dioxolane was tested for potential mutagenic activity using the Bacterial Reverse Mutation Assay.
The experiments were carried out using histidine-requiring auxotroph strains of Salmonella typhimurium (Salmonella typhimurium TA98, TA100, TA1535 and TA1537), and the tryptophan-requiring auxotroph strain of Escherichia coli (Escherichia coli WP2 uvrA) in the presence and absence of a metabolic activation system, which was a cofactor-supplemented post-mitochondrial S9 fraction prepared from the livers of phenobarbital/β-naphthoflavone-induced rats.
The study included a Preliminary Compatibility Test, a Preliminary Concentration Range Finding Test, an Initial Mutation Test and a Confirmatory Mutation Test. In the Preliminary Concentration Range Finding Test as well as in the Initial Mutation test, the plate incorporation method was used. In the Confirmatory Mutation Test, the pre-incubation method was used. The reported data of this mutagenicity assay show that under the experimental conditions applied the test item did not induce gene mutations by base pair changes or frameshifts in the genome of the strains used.
In conclusion, the test item 1,3-Dioxolane had no mutagenic activity in the examined bacterial strains under the test conditions of this study.

OECD TG 473 study -
In vitro assay was carried out for evaluating the ability of 1,3-Dioxolane to induce chromosome aberrations in Chinese hamster ovary (CHO) cells, with and without metabolic activation. The culture medium was the solvent of choice in this study. No toxicity at the highest concentration of 5.0 mg/mL was observed. The test article causes no cell cycle delay. During chromosome aberrations assay without metabolic activation, results were scored from 2.0 mg/mL through 5.0 mg/mL. The test article caused no significant increases in the percentage of aberrant cells at the dose range tested and is considered negative under

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the conditions of this assay. During chromosome aberrations assay with metabolic activation, results were scored from 2.0 mg/mL through 5.0 mg/mL. The successful activation of the metabolic system is indicated by the significant increase in the number of cells with chromosomal aberrations in the cyclophosphamide positive control. There was no increase in the percentage of cells with aberrations at the concentrations tested and the test article is evaluated negative under the conditions of metabolic activation.

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

· ***Reproductive toxicity***

May damage fertility or the unborn child.

Toxicity to reproduction -

A study was performed to determine the effects of maternal exposure to the test chemical during prenatal development phase. Female rats were given by gavage every other day from days 8 -20 of gestation an aqueous solution of test chemical at daily doses equal to 0.025, 0.1 and 0.2 of median lethal dose of the test chemical which had been earlier observed to be 5.8 g/kg(5800 mg/kg). Females were mated overnight with 17-week-old male rats of the same strain.The control animals were given, by gavage, an equivalent volume of distilled water. The maternal weight gain, daily food and water consumption intake were monitored throughout the gestation period. The female rats were sacrificed on day 21 of gestation under ethyl ether anesthesia. The uterus was opened and the number of live fetuses, dead fetuses, early and late resorption sites were recorded Total implantation was calculated as the sum of the number of fetuses and resorption sites in each female. Live fetuses were measured for body weight, crown-rump length and examined for external malformations.The test chemical does not cause impairment of physical development or behavioral disturbances. Therefore, based on all the available data and under the given study conditions and observations, the developmental and maternal NOAEL were both judged to be 580 mg/kg/day.

Developmental toxicity -

The maternal no-observable-adverse-effect-level (NOAEL) for 1,3-Dioxolane was 250 mg/kg/day. This conclusion is based on transient, significant reductions in feed consumption values produced by the 500 and 1000 mg/kg/day dosages as well as transient weight losses.The developmental NOAEL for 1,3-Dioxolane was 500 mg/kg/day. Reduced fetal body weights and gross external, soft tissue and skeletal malformations or variations occurred in the 1000 mg/kg/day dosage group fetuses.

· ***STOT-single exposure*** *Based on available data, the classification criteria are not met.*

· ***STOT-repeated exposure***

Repeated dose toxicity: oral

OECD TG 407 study -

A 14-day repeated dose oral toxicity study on 1,3-dioxolane was performed in Crl:CD® (SD) BR Sprague-Dawley rats according to OECD 407 (1981) at dose levels of 75, 250, 750 and 2000 mg/kg bw/day (10 males and 10 females per dose). The test material was administered in corn oil (dose volume 5 mL/kg). Corn oil controls were included, as well as controls which received water. Observations on toxicological signs and body weight measurements were made daily, food consumption was measured on a weekly basis. Haematalogy was performed on blood collected just prior to sacrifice. Necropsy was performed on all animals.

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Organs weights of liver, kidneys, adrenals, spleen, pancreas, lungs, pituitary, thymus, testes, epididymides, seminal vesicles, ovaries and uterus were measured at sacrifice. Microscopic examination was performed on the following organs and tissues of controls and high dose animals: adrenal glands, kidneys, liver, lungs, pancreas, pituitary, spleen, thymus, testes, epididymides, prostate, seminal vesicles, coagulating gland, ovaries, uterus; tissues and organs from intermediate doses were analysed in case there were treatment related findings at the high dose. Based on reduced body weight gain in males and females,reduced leukocyte and lymphocyte count in females,and reduced platelet count in males, all at 250 mg/kg, the NOAEL is 75 mg/kg bw/day.

Repeated dose toxicity: inhalation
OECD TG 413 study -
A 13-week repeated dose inhalation toxicity study on 1,3-dioxolane was performed essentially according to OECD 413 (2009) in Fischer 344 rats at targeted concentrations of 300, 1000 and 3000 ppm (10 males and 10 females per dose, exposure for 6 hours per day, 5 days per week, for a total of 13 weeks). A satellite group of 10 animals/sex/concentration was exposed at the above concentrations for 13 weeks and then allowed to recover for 8 weeks. The nominal exposure concentrations were determined by dividing the amount of test material delivered (determined by weighing before and after exposure) by the total air flow though the chamber during exposure. In addition, the concentrations of 1,3-dioxolane were determined at least 10 daily samples by IR spectroscopy. The mean measured nominal concentrations were 315, 1031 and 3119 ppm, equivalent to 0.95, 3.12 and 9.45 mg/L. The analytically determined mean measured concentrations were 298, 1000 and 3010 ppm, equivalent to 0.90, 3.03 and 9.12 mg/L. Observations on toxicological signs were made daily and a detailed physical assessment once weekly. A neurobehavioural examination was made during the sixth and the last week of the study. Body weights were measured pretest and weekly thereafter. Haematology and clinical chemistry was performed on blood collected from the main group animals during the week prior to necropsy, and from the satellite group animals during weeks 4 and 13 of exposure and weeks 4 and 8 of post-exposure. Urinalysis was performed on samples collected from the main group during the final week of exposure and prior to necropsy, and from the satellite group during weeks 4 and 8 of post-exposure. Necropsy was performed on all animals at termination . Organ weights of liver, kidneys, adrenals, thymus, spleen, heart, lungs and testes were measured at sacrifice. Histopathology was performed on all organs and tissues of the control and high dose group, and on liver, brain, kidney, lungs, spleen, bone marrow and gross lesions of the lower exposure groups. Bone marrow smears from all animals were prepared for counting of myeloid and erythroid cells, and morphologic evaluation of haemopoietic cells and their micro-environment was perfomed on bone marrow from main group rats.
Based on reduced WBC and lymphocyte count and increased platelet count in males and females, and reduced spleen weights in females, all at 1000 ppm, the NOAEC is 300 ppm target concentration equivalent to 298 ppm mean measured concentration, equivalent to 0.90 mg/L. Based on a respiration rate of 6 L/h and a 6-h exposure time, 0.90 mg/L corresponds with an inhalation exposure of 32 mg/day. The mean body weight of males at 298 ppm (main group) was 239 g, and that of females 157 g. For males and females, respectively, the concentration of 0.90 mg/L is equivalent to an inhaled dose of 135 and 205 mg/kg bw/day.

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· **Aspiration hazard** No further relevant data available

SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:**	
48 hr EC50	:> 772 mg/L (Daphnia magna) (OECD TG 202)
72 hr EC50	:> 877 mg/L (Selenastrum capricornutum (Algae)) (OECD TG 201)
96 hr LC50	:> 95.4 mg/L (Lepomis macrochirus) (OECD TG 203)
30 d NOEC	546.3 mg/L (Fish)

· **12.2 Persistence and degradability**
Not readily biodegradable
A 35-days biodegradation study (closed bottle test) was performed according to OECD 301D on 1,3-dioxolane (99.98% pure). Mineral medium was prepared according to OECD 301D (measured TOC <1.0 mg/L) and sterilized by autoclaving. Two liters of aerated mineral medium were added to each of three 10-L glass jars. To the first jar (inoculums blank) 8 mL of microbial inoculum was added. To the second jar (procedure control) 8 mL of microbial inoculums and 80 mL of sodium reference substance benzoate stock solution (300 mg a.s./L) was added, to give a nominal concentration of 3.00 mg a.s./L. To the third jar (test substance) 8 mL of microbial inoculums and 15 mL of test substance stock solution (1620 mg a.s./L) was added, to give a nominal concentration of 3.04 mg a.s./L. Each of the jars was brought to a final volume of 8.0 L using mineral medium. Of each solution, 300 mL were siphoned into 20 separate 300 mL sterilized BOD bottles. The BOD bottles were sealed and incubated in the dark at 22±2°C. Duplicate bottles were removed for oxygen analysis at 0, 3, 5, 8, 11, 14, 17, 21, 28 and 35 days of incubation. The validity criteria were fulfilled: The differences in extremes of replicate values for the removal of the test substance were less than the 20% criterion; the reference substance reached pass levels by day 14 (63.5% degradation by day 14). The oxygen depletion in the inoculum blank did not exceed the criterion of 1.5 mg/L O2/L after 28 days. The residual concentration of oxygen in all test bottles remained above 0.5 mg/L specified in the quality criteria.1,3-Dioxolane was not readily biodegradable in this study (3.70% biodegradation after 35 days).
· **12.3 Bioaccumulative potential** No further relevant information available.
· **12.4 Mobility in soil**
The adsorption/desorption is calculated with the KOCWIN program (v2.00) resulting in a Koc = 3.461 L/kg based on a Log Kow= -0.37.
· **12.5 Results of PBT and vPvB assessment**
· **PBT:** The substance is not PBT.
· **vPvB:** The substance is not vPvB.
· **12.6 Other adverse effects** No further relevant information available.

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SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**
· **Recommendation**
The generation of waste should be avoided or minimised wherever possible.
Disposal required in compliance with all waste management related state and local regulations. The choice of the appropriate method of disposal depends on the product composition by the time of disposal as well as the local statutes and possibilities for disposal.
· **Waste disposal key:**
Waste must be disposed of in accordance with federal, state and local environmental control regulations

· **Uncleaned packaging:**
· **Recommendation:**
Do not re-use empty containers.
Dispose off according to Federal, State and Local Regulations.
Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.

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

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· **14.6 Special precautions for user**	Warning: Flammable liquids.
· **Hazard identification number (Kemler code):**	33
· **EMS Number:**	F-E,S-D
· **Stowage Category**	B
· **Stowage Code**	SW2 Clear of living quarters.
· **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **ADR**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **Transport category**	2
· **Tunnel restriction code**	D/E
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **UN "Model Regulation":**	UN 1166 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**

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

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· **Hazard pictograms**

GHS02 GHS05 GHS08

· **Signal word** Danger
· **Hazard statements**
H225 Highly flammable liquid and vapour.
H318 Causes serious eye damage.
H360 May damage fertility or the unborn child.
· **Precautionary statements**

P201	Obtain special instructions before use.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **National regulations:**

· **Other regulations, limitations and prohibitive regulations**
International inventory list:
RCRA 40CFR: Not listed
CERCLA: 40CFR 302.4: Not listed
SARA 40CFR 372.65: Not listed
SARA EHS 40CFR 355: Not listed
TSCA: Listed
DSL: Listed
ENCS: Listed
KECL: Listed
IECSC: Listed
· **15.2 Chemical safety assessment:**
A Chemical Safety Assessment has been carried out.

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.

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· **Department issuing SDS:** Product safety department.
· **Contact:**
Phone +91 22 25968361/62
Fax +91 22 25958586
· **Abbreviations and acronyms:**
ADR: Accord relatif au transport international 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 Harmonised 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
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 2: Flammable liquids – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Repr. 1B: Reproductive toxicity – Category 1B
· **Sources**
REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on classification, labelling and packaging of substances and mixtures, amending and repealing COMMISSION REGULATION (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006
ECHA - https://echa.europa.eu/substance-information/-/substanceinfo/100.010.422
Toxplanet - https://chemical-search.toxplanet.com//product-search/chem-id/ei-fts-search/79d7098a-4046-4760-b3b0-be88db1f1dc6
Haz-map
Genium's handbook
SAX's handbook
GESTIS substance database
· *** Data compared to the previous version altered.**
• Section 1: Identification of substance and company
• Section 2: Hazard Identification
• Section 3: Composition/information on ingredients
• Section 4: First-aid measures.
• Section 5: Fire-fighting measures
• Section 6: Accidental Release measures
• Section 11: Toxicological Information
• Section 12: Ecological Information
• Section 13: Disposal consideration
• Section 14: Transport information
• Section 15: Regulatory information
• Section 16: Other information