SAFETY DATA SHEETS

According to Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Sixth revised edition

Version: 1.0

Creation Date: Aug 12, 2017

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1. Identification

1.1 GHS Product identifier

Product name	anisole

1.2 Other means of identification

Product number	-
Other names	Anizol

1.3 Recommended use of the chemical and restrictions on use

Identified uses	For industry use only. Food additives -> Flavoring Agents
Uses advised against	no data available

2. Hazard identification

2.1 Classification of the substance or mixture

Flammable liquids, Category 3

2.2 GHS label elements, including precautionary statements

Pictogram(s)

Signal word

Warning

Hazard statement(s)

H226 Flammable liquid and vapour

Precautionary statement(s)	
Prevention	P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P233 Keep container tightly closed. P240 Ground and bond container and receiving equipment. P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment. P242 Use non-sparking tools. P243 Take action to prevent static discharges. P280 Wear protective gloves/protective clothing/eye protection/face protection.
Response	P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. P370+P378 In case of fire: Use ... to extinguish.
Storage	P403+P235 Store in a well-ventilated place. Keep cool.
Disposal	P501 Dispose of contents/container to ...

2.3 Other hazards which do not result in classification

none

3. Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
anisole	anisole	100-66-3	none	100%

4. First-aid measures

4.1 Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

Fresh air, rest.

In case of skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

In case of eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

If swallowed

Rinse mouth. Do NOT induce vomiting. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

Excerpt from ERG Guide 128 [Flammable Liquids (Water-Immiscible)]: Inhalation or contact with material may irritate or burn skin and eyes. Fire may produce irritating, corrosive and/or toxic gases. Vapors may cause dizziness or suffocation. Runoff from fire control or dilution water may cause pollution. (ERG, 2016)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Absorption, Distribution and Excretion

IN SITU PERFUSION IN RAT USED TO STUDY GASTROINTESTINAL ABSORPTION OF 4 FOOD ADDITIVES DERIVED FROM METHOXYBENZENE INCL ANISOLE. CMPD LARGELY WERE ABSORBED FROM DIGESTIVE TRACT BY PASSIVE DIFFUSION. ABSORPTION KINETICS VARY & ARE EXPLAINED BY DIFFERENCES IN LIPOSOLUBILITY.

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5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

If material on fir or involved in fire: Do not extinguish fire unless flow can be

stopped or safely confined. Use water in flooding quantities as fog. Solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Use foam, dry chemical, or carbon dioxide. Keep run-off water out of sewers and water sources.

5.2 Specific hazards arising from the chemical

Excerpt from ERG Guide 128 [Flammable Liquids (Water-Immiscible)]: HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Vapor explosion hazard indoors, outdoors or in sewers. Those substances designated with a (P) may polymerize explosively when heated or involved in a fire. Runoff to sewer may create fire or explosion hazard. Containers may explode when heated. Many liquids are lighter than water. Substance may be transported hot. For hybrid vehicles, ERG Guide 147 (lithium ion batteries) or ERG Guide 138 (sodium batteries) should also be consulted. If molten aluminum is involved, refer to ERG Guide 169. (ERG, 2016)

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

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6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions

Ventilation. Remove all ignition sources. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use.Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Fireproof.

8. Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique(without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and

dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

9. Physical and chemical properties

Physical state	clear straw colored liquid
Colour	MOBILE LIQUID, CLEAR STRAW COLOR
Odour	SWEET ANISE-LIKE ODOR
Melting point/ freezing point	-37ºC
Boiling point or initial boiling point and boiling range	154°C(lit.)
Flammability	Flammable.
Lower and upper explosion limit / flammability limit	no data available
Flash point	51°C
Auto-ignition temperature	475°C
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	1.52 centipoise at 15°C; 0.778 centipoise at 30°C
Solubility	In water:1.6 g/L (20 ºC)
Partition coefficient n-octanol/water (log value)	Log Kow = 2.11
Vapour pressure	10 mm Hg (42.2 °C)
Density and/or relative density	0.995g/mLat 25°C(lit.)
Relative vapour density	3.7 (vs air)
Particle characteristics	no data available

10. Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Ethers, such as ANISOLE can act as bases. They form salts with strong acids and addition complexes with Lewis acids. The complex between diethyl ether and boron trifluoride is an example. Ethers may react violently with strong oxidizing agents. In other reactions, which typically involve the breaking of the carbon-oxygen bond, ethers are relatively inert.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

When heated to decomp, emits acrid fumes.

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11. Toxicological information

Acute toxicity

- Oral: no data available
- Inhalation: no data available
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12. Ecological information

12.1 Toxicity

- Toxicity to fish: no data available
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

In a 2-week biodegradation screening test (MITI test) using anisole (100 ppm) and an activated sludge inoculum, 56% of BOD was removed and at the end of the 2-week period there was an upward trend in BOD consumption(1). Anisole was readily biodegradable in another screening test; >70% DOC and >60% BOD were removed in this test(3). Anisole completely degraded in a biodegradation test that utilized a soil inoculum(2).

12.3 Bioaccumulative potential

Using its log Kow, 2.11(2), one estimates a BCF of 24 for anisole using a recommended regression equation(3). The bioconcentration of anisole in

aquatic organisms was determined in a model aquatic ecosystem maintained at 26.7°C with 12 hr of simulated daylight exposure(1). After 24 hr exposure, the ecological magnification for anisole was (organism, bioaccumulation factor): fish, 22; mosquito larva, 27; algae, 563; daphnia, 771; snails, 899(1). There were signs of considerable metabolism in all species. O-dealkylate occurred in fish and snail, hydroxylation to o- and p-methoxyphenols occurred in all species except daphnia, and conjugation occurred in alga and snails(1). According to a recommended classification scheme(4), this BCF value and its metabolism in aquatic organisms would indicate that anisole has a low potential for bioconcentration in fish and aquatic organisms(SRC).

12.4 Mobility in soil

An experimental Koc of 35 has been reported for anisole(1). Using an estimation method based on molecular connectivity indices(2), the Koc for anisole is estimated to be 118(SRC). According to a suggested classification scheme(3), these Koc values respectively suggest that anisole would be very highly mobile and highly mobile in soil and would readily leach(SRC).

12.5 Other adverse effects

no data available

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13. Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

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14. Transport information

14.1 UN Number

ADR/RID: UN2222 IMDG: UN2222 IATA: UN2222

14.2 UN Proper Shipping Name

ADR/RID: ANISOLE
IMDG: ANISOLE
IATA: ANISOLE

14.3 Transport hazard class(es)

ADR/RID: 3 IMDG: 3 IATA: 3

14.4 Packing group, if applicable

ADR/RID: III IMDG: III IATA: III

14.5 Environmental hazards

ADR/RID: no IMDG: no IATA: no

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

no data available

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15. Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
anisole	anisole	100-66-3	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.

Vietnam National Chemical Inventory	Not Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)	Listed.

16. Other information

Information on revision

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Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home
- HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm
- IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple

- ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg
- Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp
- ECHA - European Chemicals Agency, website: https://echa.europa.eu/
