

Chemical Safety Data Sheet MSDS / SDS

Maneb SDS

Revision Date:2024-04-25 Revision Number:1

Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Section 7	Section 8
Section 9	Section 10	Section 11	Section 12	Section 13	Section 14	Section 15	Section 16

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

Product name: Maneb
CAS: 12427-38-2

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

Relevant identified uses: For R&D use only. Not for medicinal, household or other use.
Uses advised against: none

Company Identification

Company: Chemicalbook.in
Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090
Telephone: +91 9550333722

SECTION 2: Hazards identification**Classification of the substance or mixture**

Eye irritation, Category 2
Skin sensitization, Category 1

Acute toxicity - Category 4, Inhalation
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1
Reproductive toxicity, Category 2

GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Warning

Hazard statement(s)

H319 Causes serious eye irritation
H317 May cause an allergic skin reaction
H332 Harmful if inhaled
H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P272 Contaminated work clothing should not be allowed out of the workplace.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P203 Obtain, read and follow all safety instructions before use.

Response

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P302+P352 IF ON SKIN: Wash with plenty of water/...
P333+P317 If skin irritation or rash occurs: Get medical help.
P321 Specific treatment (see ... on this label).
P362+P364 Take off contaminated clothing and wash it before reuse.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P317 Get medical help.
P391 Collect spillage.

P318 IF exposed or concerned, get medical advice.

Storage

P405 Store locked up.

Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name: Maneb

Common names and synonyms: Maneb

CAS number: 12427-38-2

EC number: 235-654-8

Concentration: 100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest.

Following skin contact

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

Following eye contact

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

Following ingestion

Rinse mouth. Refer for medical attention .

Most important symptoms/effects, acute and delayed

Excerpt from ERG Guide 135 [Substances - Spontaneously Combustible]: Fire will produce irritating, corrosive and/or toxic gases. Inhalation of decomposition products may cause severe injury or death. Contact with substance may cause severe burns to skin and eyes. Runoff from fire control may cause pollution. (ERG, 2016)

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

Immediate first aid: Remove patient from contact with the material. Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention.
Dithiocarbamates and Related Compounds

SECTION 5: Firefighting measures

Suitable extinguishing media

If material on fire or involved in fire: Do not extinguish fire unless flow can be stopped. Do not use water. Use graphite, soda ash, powdered sodium chloride, or suitable dry powder. Maneb or mane b preparations stabilized

Specific hazards arising from the chemical

Excerpt from ERG Guide 135 [Substances - Spontaneously Combustible]: Flammable/combustible material. May ignite on contact with moist air or moisture. May burn rapidly with flare-burning effect. Some react vigorously or explosively on contact with water. Some may decompose explosively when heated or involved in a fire. May re-ignite after fire is extinguished. Runoff may create fire or explosion hazard. Containers may explode when heated. (ERG, 2016)

Special protective actions for fire-fighters

Use carbon dioxide, dry powder. NO hydrous agents. NO water.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Do NOT wash away into sewer. Sweep spilled substance into covered sealable containers. Carefully collect remainder. Then store and dispose of according to local regulations.

Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Do NOT wash away into sewer. Sweep spilled substance into covered sealable containers. Carefully collect remainder. Then store and dispose of according to local regulations.

Methods and materials for containment and cleaning up

SRP: Wastewater from contaminant suppression, cleaning of protective clothing/equipment, or contaminated sites should be contained and evaluated for subject chemical or decomposition product concentrations. Concentrations shall be lower than applicable environmental discharge or disposal criteria. Alternatively, pretreatment and/or discharge to a permitted wastewater treatment facility is acceptable only after review by the governing authority and assurance that "pass through" violations will not occur. Due consideration shall be given to remediation worker exposure (inhalation, dermal and ingestion) as well as fate during treatment, transfer and disposal. If it is not practicable to manage the chemical in this fashion, it must be evaluated in accordance with EPA 40 CFR Part 261, specifically Subpart B, in order to determine the appropriate local, state and federal requirements for disposal.

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames. NO contact with water. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

Conditions for safe storage, including any incompatibilities

Separated from acids and food and feedstuffs. Dry. Well closed. Keep in a well-ventilated room. Store only if stabilized. This product must be stored in its sealed original containers, in well-aired places. It is recommended that the product's temperature should not exceed 25-30 deg C. The containers must be stacked in such a way as to permit a free circulation of air also at the bottom & inside of the piles.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

MAK sensitization of skin (SH)

Biological limit values

no data available

Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

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

Eye/face protection

Wear safety goggles or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:

Maneb is a yellow powder or crystalline solid. It is denser than water. Contact may irritate skin, eyes and mucous membranes. It may be toxic by ingestion. Likely to generate heat spontaneously upon exposure to air or water. May be sufficient to ignite the material. Maneb is used as a fungicide. Formulations of Maneb include mixing it with many other chemicals such as sulfur, zinc oxide and others to desensitize it. This is done to make it easier for application.

Colour:	Yellow powder; crystals from alcohol
Odour:	Practically odorless
Melting point/freezing point:	192-204°C (decomposes before melting)
Boiling point or initial boiling point and boiling range:	308.2°C at 760 mmHg
Flammability:	Combustible. Liquid formulations containing organic solvents may be flammable. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	no data available
Auto-ignition temperature:	no data available
Decomposition temperature:	192-204°C
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	Soluble in chloroform, pyridine
Partition coefficient n-octanol/water:	log Kow = 0.62 (est)
Vapour pressure:	7.5X10 ⁻⁸ mm Hg at 25 deg C
Density and/or relative density:	1.92
Relative vapour density:	no data available

Particle characteristics: no data available

SECTION 10: Stability and reactivity

Reactivity

500 mg/cu m Manganese cmpds and fume, as Mn

Decomposes on contact with acids or moisture. This produces toxic and flammable gases including hydrogen sulfide and carbon disulfide.

Chemical stability

Stable under ordinary storage conditions but decomposes more or less rapidly when exposed to moisture or to acids. In presence of moisture decomposition proceeds as in nabam with formation of polymeric ethylene thiuram monosulfide. ... The biological activity of the product remains practically unvaried for 2 yr under environmental conditions, provided the product is stored in its unopened & undamaged original containers, in shaded & possible well-aired places.

Possibility of hazardous reactions

May ignite spontaneously in air. The BPS Pesticide incident in Helena resulted in an explosion and death of three firemen. The burning of a 1,000 pound sack of Azinphos Methyl or the flashing of Maneb which was present on the facility may have caused the explosion.

Conditions to avoid

no data available

Incompatible materials

Water, acid, oxidizing materials. Heat or contact with moisture or acids causes rapid decomposition and the generation of toxic and flammable hydrogen sulfide and carbon disulfide.

Hazardous decomposition products

Decomposes without melting at 192-204 deg C. ... Decomposes on prolonged exposure to air or moisture.

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Rat oral 6750 mg/kg

Inhalation: LC50 Rat inhalation > 1.3 mg/L

Dermal: LD50 Rat percutaneous > 5000 mg/kg

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 are available in humans. Inadequate evidence of carcinogenicity in animals. OVERALL EVALUATION: Group 3: The agent is not classifiable as to its carcinogenicity to humans.

Reproductive toxicity

no data available

STOT-single exposure

The substance is irritating to the eyes, skin and respiratory tract.

STOT-repeated exposure

Repeated or prolonged contact may cause skin sensitization. The substance may have effects on the kidneys and central nervous system. This may result in kidney impairment and neurologic and neuropsychiatric disorders (manganism).

Aspiration hazard

Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50; Species: *Lepomis macrochirus* (Bluegill); Conditions: freshwater, static; Concentration: <78000 ug/L for 48 hr /5.6% purity

Toxicity to daphnia and other aquatic invertebrates: EC50; Species: *Daphnia magna* (Water flea, exponential growth phase); Conditions: freshwater, flow through, 20 deg C; Concentration: 60 ug/L for <1.5 days (95% confidence interval: 50-70 ug/L); Effect: population changes, general, carrying capacity /> or =90% purity

Toxicity to algae: EC50; Species: *Pseudokirchneriella subcapitata* (Green algae); Conditions: freshwater, static; Concentration: 14 ug/L for 120 hr; Effect: population abundance /87.3% purity

Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: Approximately 90% maneb was degraded under aerobic conditions in six weeks in a field test in moist plough layer with 2-4% humus, with a pH of 5.5-6.5 under a medium air temperature of 11-16 deg C(1). In loamy sand in dark aerobic conditions, 50% maneb is degraded in 25 days(2). In a 5-day CO₂ evolution study using an activated sludge inoculum, 0.6% of applied maneb (50 ppb; (14)C radiolabeled) was detected as (14)C labeled CO₂(3). The effect of maneb on microorganisms in two agriculturally important soils in Puerto Rico was studied under laboratory conditions for an 18-month period(4). In general, bacterial numbers increased while actinomycetes and fungi decreased, especially at higher concns (up to 960 ppm)(4). It was postulated that bacteria are the principal microorganisms in soil responsible for maneb biodegradation(4).

Bioaccumulative potential

In a 3-day static system study, a BCF for maneb of <10 was measured in golden ide (*Leuciscus idus melanotus*) fish(1). According to a classification scheme(2), this BCF suggests bioconcentration in aquatic organisms is low.

Mobility in soil

The Koc for maneb is 240(1). According to a classification scheme(2), this Koc value suggests that maneb is expected to have moderate mobility in soil. Using soil thin-layer chromatography and five different soil types, the Rf value of maneb was found to range from 0 to 0.42 which indicates immobility to moderate mobility in soil(3). These higher Rf values may have resulted from a dissociation to the free ethylenebis(dithiocarbamate) or the presence of an ethylene thiourea impurity(4), otherwise, maneb can

be expected to be generally immobile in soil(3). In a microagroecosystem chamber study using a Galestown sandy loam soil, spray applications of maneb did not penetrate below a 1 cm depth although unspecified soluble degradation products were collected in leachate waters(4). During a 52-week field study in Delaware where 14-C-labeled maneb was applied to a silty loam soil, radio-labeled residues did not leach below a 5 inch depth(5).

Other adverse effects

no data available

SECTION 13: Disposal considerations

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.

SECTION 14: Transport information

UN Number

ADR/RID: UN2968 (For reference only, please check.)

IMDG: UN2968 (For reference only, please check.)

IATA: UN2968 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: MANEB, STABILIZED or MANEB PREPARATION, STABILIZED against self-heating (For reference only, please check.)

IMDG: MANEB, STABILIZED or MANEB PREPARATION, STABILIZED against self-heating (For reference only, please check.)

IATA: MANEB, STABILIZED or MANEB PREPARATION, STABILIZED against self-heating (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 4.3 (For reference only, please check.)
IMDG: 4.3 (For reference only, please check.)
IATA: 4.3 (For reference only, please check.)

Packing group, if applicable

ADR/RID: III (For reference only, please check.)
IMDG: III (For reference only, please check.)
IATA: III (For reference only, please check.)

Environmental hazards

ADR/RID: Yes
IMDG: Yes
IATA: Yes

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

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

European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

EC Inventory

Listed.

United States Toxic Substances Control Act (TSCA) Inventory

Not Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

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/>

Other Information

UN number 2968: Haz class 4.3; Pack Group III; Maneb stabilized against self-heating. Carrier solvents used in commercial formulations may change physical and toxicological properties.

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any