

MATERIAL SAFETY DATASHEET

VAPORMATE

(Please ensure that this MSDS is received by an appropriate person)

Date: June 2017

Version1

Ref no.: MSNIG026

1 PRODUCT AND COMPANY IDENTIFICATION

Product Name VAPORMATE™

Chemical Formula C₃-H₆-O₂ (16.7% by weight)
CO₂ (83.3% balance)

Company Identification BOC Gases Nigeria Plc
Block H Plot 1-3 Apapa Oshodi
Expressway
Oshodi, Lagos, Nigeria
Tel No: 234 (01) 3429178

EMERGENCY NUMBER +234(0)8076411479 (24 hours)

Synonym(s) ETHYL FORMATE IN CARBON
DIOXIDE

Use(s) FUMIGANT
INDUSTRIAL APPLICATIONS

2 COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Preparation: Preparation.

Contains the following components:

Carbon dioxide (83.3% by weight)
CAS Nr: 124-38-9

Ethyl formate 16.7% by weight
CAS Nr: 109-94-4

3 HAZARDS IDENTIFICATION

Dangerous preparation in the sense of the SANS 10234:2008 guidelines

Classification

Liquefied gas
Highly flammable liquid and vapour
Harmful if inhaled
Causes serious eye irritation
May cause respiratory irritation

Risk advice to man and the environment

Contact with liquid may cause cold burns/frost bite.

4 FIRST AID MEASURES

Eye/Skin Contact: For liquid spillage immediately flush with water for at least 15 minutes. Obtain medical assistance. Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Launder clothing before reuse.

Ingestion or Swallowing: Ingestion is not considered a potential route of exposure.

Inhalation: In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Low concentrations of CO₂ cause increased respiration and headache. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped. Harmful by inhalation.

5 FIRE FIGHTING MEASURES

Specific hazards

Exposure to fire may cause containers to rupture/explode. Vapormate™ is very flammable.

Hazardous combustion products

Incomplete combustion may form carbon monoxide.

Suitable extinguishing media

All known extinguishants can be used.

Specific methods

If possible, stop flow of product. Move container away or cool with water from a protected position. Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur. Extinguish any other fire.

Special protective equipment for fire fighters

In confined space use self-contained breathing apparatus.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions

Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Evacuate area. Ensure adequate air ventilation. Eliminate ignition sources.

Environmental precautions

Try to stop release. Prevent from entering sewers/drains, basements and workpits, or any place where its accumulation can be dangerous. Reduce vapour with fog or fine water spray.

Clean up methods

Ventilate area. Keep area evacuated and free from ignition sources until any spilled liquid has evaporated. (Ground free from frost). Hose down area with water. Prevent runoff water from entering drains/sewers Wash contaminated equipment or sites of leaks with copious quantities of water.

7 HANDLING AND STORAGE

Safe Handling

Ensure equipment is adequately earthed. Suck back of water into the container must be prevented. Purge air from system before introducing gas. Do not allow back-feed into the container. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Keep away from ignition sources (including static discharges). Refer to supplier's handling instructions.

Storage

Secure cylinders to prevent them from falling. Segregate from oxidant gases and other oxidants in store. Keep container below 50°C in a well ventilated place.

MATERIAL SAFETY DATASHEET

VAPORMATE

(Please ensure that this MSDS is received by an appropriate person)

Date: June 2017

Version1

Ref no.: MSNIG026

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit value

Value type	Comp.	Value	Note
Germany - AGW	CO ₂	5.000 ppm	TRGS 900
Germany - AGW	C ₃ -H ₆ -O ₂	100 ppm	TRGS 900

Biological Limits

No biological limit allocated

Engineering Controls

During application this product is vaporized into a gas tight fumigation space, therefore ventilation is not normally required. Maintain vapour levels below the recommended exposure standard.

Personal protection

Ensure adequate ventilation. Protect eyes, face and skin from liquid splashes. Wear breathing respirator. Do not smoke while handling product. Carry working gloves and protection shoes while handling gas cylinders. Keep self contained breathing apparatus readily available for emergency use.

9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DATA

Chemical Symbol	C ₃ -H ₆ -O ₂ (16.7%) CO ₂ (83.3%)
Colour	None
Odour	Sweet ester
Relative density (Air = 1) @ 101,325 kPa	1.63
Boiling Point (CO ₂)	-78.5 °C
Boiling Point (Ethyl Formate)	-44.3 °C
Melting Point (CO ₂)	-56.6 °C
(CO ₂ in water)	0.759cm ³ /cm ³

10 STABILITY AND REACTIVITY

Stability and reactivity

This material is stable under normal conditions of storage.

Can form explosive mixture with air.

May react violently with oxidants.

Materials to Avoid Moist carbon dioxide is corrosive, hence acid resistant materials are required (aluminium, stainless steel). Incompatible with oxidising agents (nitrates, oxygen), halogens (chlorine, bromine), acids (nitric acid) and some chlorides. Most rubbers and plastics are affected by carbon dioxide.

Hazardous Decomposition Products None

11 TOXICOLOGICAL INFORMATION

Health Hazard Summary: Harmful to respiratory system. May be irritating to eyes and skin. Carbon dioxide is normally present in the air at a concentration of 340ppm by volume. Accelerated breathing and heart rate may occur with exposure above the normal level. Carbon dioxide can be fatal with exposure to very high concentrations. Long term exposure to CO₂ has no known health effects. Exposure to high concentrations of ethyl formate may cause toxic effects, including dizziness or suffocation, dyspnea and pulmonary oedema. Ethyl formate is a narcotic and may cause CNS depression leading to death due to circulatory and respiratory failure without convulsions or coma.

Skin & eye contact: May be irritating to skin and eyes.

Inhalation: Harmful. Inhalation of vapours may cause

dizziness or suffocation.

Ingestion: Ingestion is considered unlikely due to product form.

12 ECOLOGICAL INFORMATION

Environment: This product is used as an insect fumigant. Uncontrolled release of this product may cause damage to the environment. Do not allow product to enter waterways. Carbon dioxide in the atmosphere contributes to the "greenhouse effect". Does not contain Class I or II ozone depleting chemicals

13 DISPOSAL CONSIDERATIONS

Waste disposal: Cylinders should be returned to the manufacturer or supplier for disposal of contents.

Disposal of packaging: The disposal of containers must only be handled by the gas supplier.

14 TRANSPORT INFORMATION

ADR/RID

Class 2 Classification Code 2F

UN number and proper shipping name

UN 3161 Liquefied gas, flammable, n.o.s.

UN 3161 Liquefied gas, flammable, n.o.s.

Labels 2.1 Hazard number 23

IMDG

Class 2.1

UN number and proper shipping name

UN 3161 Liquefied gas, flammable, n.o.s.

Labels 2.1

Packing Instruction P200

EmS FD,SU

IATA

Class 2.1

UN number and proper shipping name

UN 3161 Liquefied gas, flammable, n.o.s.

Labels 2.1

Packing Instruction P200

Other transport information: Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers ensure that they are firmly secured. Ensure that the cylinder valve is closed and not leaking. Ensure that the valve outlet cap nut or plug (where provided) is correctly fitted. Ensure that the valve protection device (where provided) is correctly fitted. Ensure adequate ventilation. Ensure compliance with applicable regulations.

15 REGULATORY INFORMATION

Reference standard: SANS 10234 and supplement

National legislation: OHSAct and Regulation (85 of 1993)

BOC Gases Nigeria Plc

Block H, Plot 1-3 Apapa Oshodi Expressway,
PMB 1053 Oshodi, Lagos

Tel: 01-3429179, Email: Nigeria.customer.service@boc.com



MATERIAL SAFETY DATASHEET

VAPORMATE

(Please ensure that this MSDS is received by an appropriate person)

Date: June 2017

Version1

Ref no.: MSNIG026

16 OTHER INFORMATION

SANS 10234-Globally Harmonized System of Classification and Labelling of Chemicals and Matheson Gas data book

EXCLUSION OF LIABILITY

Information contained in this publication is accurate at the date of publication. The company does not accept liability arising from the use of this information, or the use, application, adaptation or process of any products described herein.
