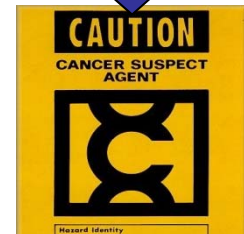




Current Practice of Recycling and Treatment of Hazardous Wastes in the Philippines



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Outline of the Presentation

- I. Hazardous Waste Management Requirements and Procedures
- II. Treatment, Storage and Disposal (TSD) Facilities





RA6969: Toxic Substances and Hazardous and Nuclear Waste Control Act of 1990

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Republic Act 6969: Toxic Substances and Hazardous and Nuclear Waste Control Act of 1990

**DENR Administrative Order (DAO) 92-29
(Implementing Rules and Regulations of
RA 6969)**

**DENR Administrative Order (DAO) 04-36
(Procedural Manual for Hazardous
Waste Management)**





DENR Administrative Order No. 29, Series of 1992: THE IMPLEMENTING RULES AND REGULATIONS

Title II: Management of Chemicals and Toxic Substances (Sections 14 to 23)

▶▶ *provides for the regulation of all chemical substances that may pose threat to public health and the environment whether through import, manufacture, sale, use, distribution, and disposal*

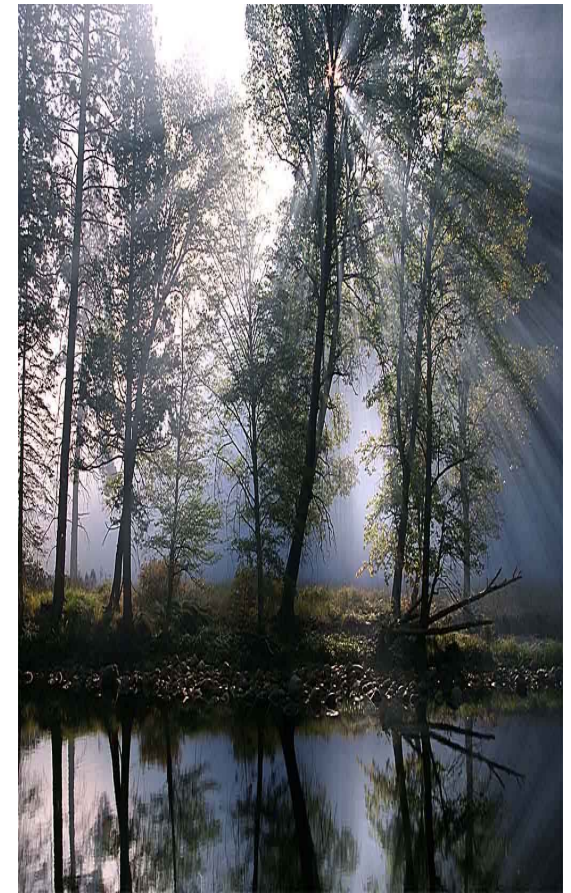




DENR Administrative Order No. 29, Series of 1992: THE IMPLEMENTING RULES AND REGULATIONS

Title III: Hazardous Waste Management (Sections 24 to 31)

- ▶▶ ***provides for the regulation of all hazardous wastes from generation, transport, storage, re-use/recycling, treatment and disposal***





HAZARDOUS WASTE MANAGEMENT Requirements and Procedures

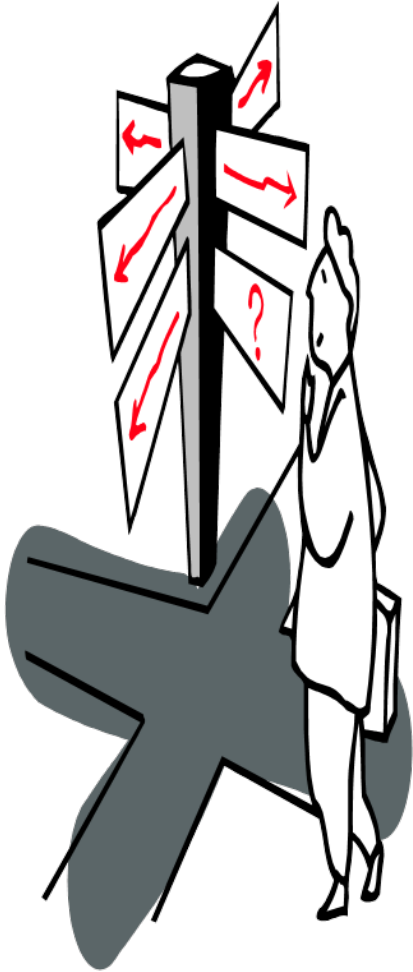


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Title III: Hazardous Waste Management (Sections 24 to 31)



- ▶▶ Policy
- ▶▶ Classification of Hazardous Waste
- ▶▶ Waste Generators
- ▶▶ Waste Transporter
- ▶▶ Waste Transport Record
- ▶▶ Hazardous Waste Storage and Labeling
- ▶▶ Waste Treatment and Disposal Premises
- ▶▶ Import and Export of Hazardous Substances





What are Hazardous Wastes?

- substances that are without any safe commercial, industrial, agricultural or economic usage and are shipped, transported or brought from the country of origin for dumping or disposal into or in transit through any part of the territory of the Philippines
- by-products, side-products, process residues, spent reaction media, contaminated plant or equipment or other substances from manufacturing operations and as consumer discards of manufactured products which present unreasonable risk and/or injury to health and safety and to the environment





CHARACTERISTICS OF HAZARDOUS WASTE



TOXICITY

REACTIVITY



IGNITABILITY

CORROSIVITY





Prescribed Hazardous Wastes

CLASS

WASTE NUMBER

▶▶ Plating wastes (Waste with cyanide)	A101
▶▶ Acid wastes	B201 to B299
▶▶ Alkali wastes	C101 to C399
▶▶ Wastes with Inorganic Chemical	D401 to D499
▶▶ Reactive Chemical Wastes	E501 to E599
▶▶ Paints/Resins/Latices/Inks/Dyes...	F601 to F699
▶▶ Waste Organic Solvents	G703 to G704
▶▶ Putrescible/Organic Wastes	H801 to H802
▶▶ Oil	I101
▶▶ Containers	J201
▶▶ Immobilized Wastes	K301 to K303
▶▶ Organic Chemicals	L401 to L499
▶▶ Miscellaneous Wastes	M501 to M504





WASTE GENERATORS

- ▶▶ Determine if wastes are hazardous waste

- ▶▶ Register as Waste Generator [Section 26(1)(a)]
 - ▶▶ Prescribed Registration Form
 - ▶▶ Issuance of DENR Identification Number

- ▶▶ Submit Quarterly Hazardous Waste Generators Reports [Section 26(1)(b)]
 - ▶▶ Prescribed Quarterly Report Form

- ▶▶ Responsible for storage and labeling of wastes (standard containers and labels)

- ▶▶ Submit Contingency/Emergency Plan

- ▶▶ Conduct Personnel training

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WASTE TRANSPORTER and WASTE TRANSPORT RECORD

- ▶▶ Waste Transporter Registration or Accreditation
 - ▶▶ Checklist of Information Requirement (New Transporter)

- ▶▶ Issuance of Transport Permit
 - ▶▶ Checklist of Information Requirement

- ▶▶ Uniform Hazardous Manifest
 - ▶▶ Prescribed Manifest Form





Registration Requirements

Submit registration form together with documents indicated below and pay the prescribed fee.

- a. Business Permit and SEC Registration Certificate
- b. Description and Specification of Conveyance, Details of Transport Service
- c. Photographs of conveyance (inside and outside parts of vehicle)
- d. Sketch and Photograph of a garage
- e. Proof of ownership of vehicle (Contract of Lease or Deed of Sale, if applicable)
- f. Certification from the Bureau of Fire Protection, in case of tank lorry
- g. Contingency and Emergency Preparedness Plan
- h. Accountability Statement (duly notarized)
- i. Copy of the Certificate of Registration and Official Receipt (LTO)
- j. Certificate of training of Drivers and Helpers





Waste Transport Record (Manifest)

Section A: Generator Information

- Names, addresses, DENR ID numbers, and telephone and fax numbers of the waste generator,
- Class, sub-category, and quantity of each hazardous wastes
- Type of container used during transport
- Intended methods of hazardous wastes treatment, storage, recycling, reprocessing, or disposal at TSD facilities
- Special Instructions

Section B: Transporter Information

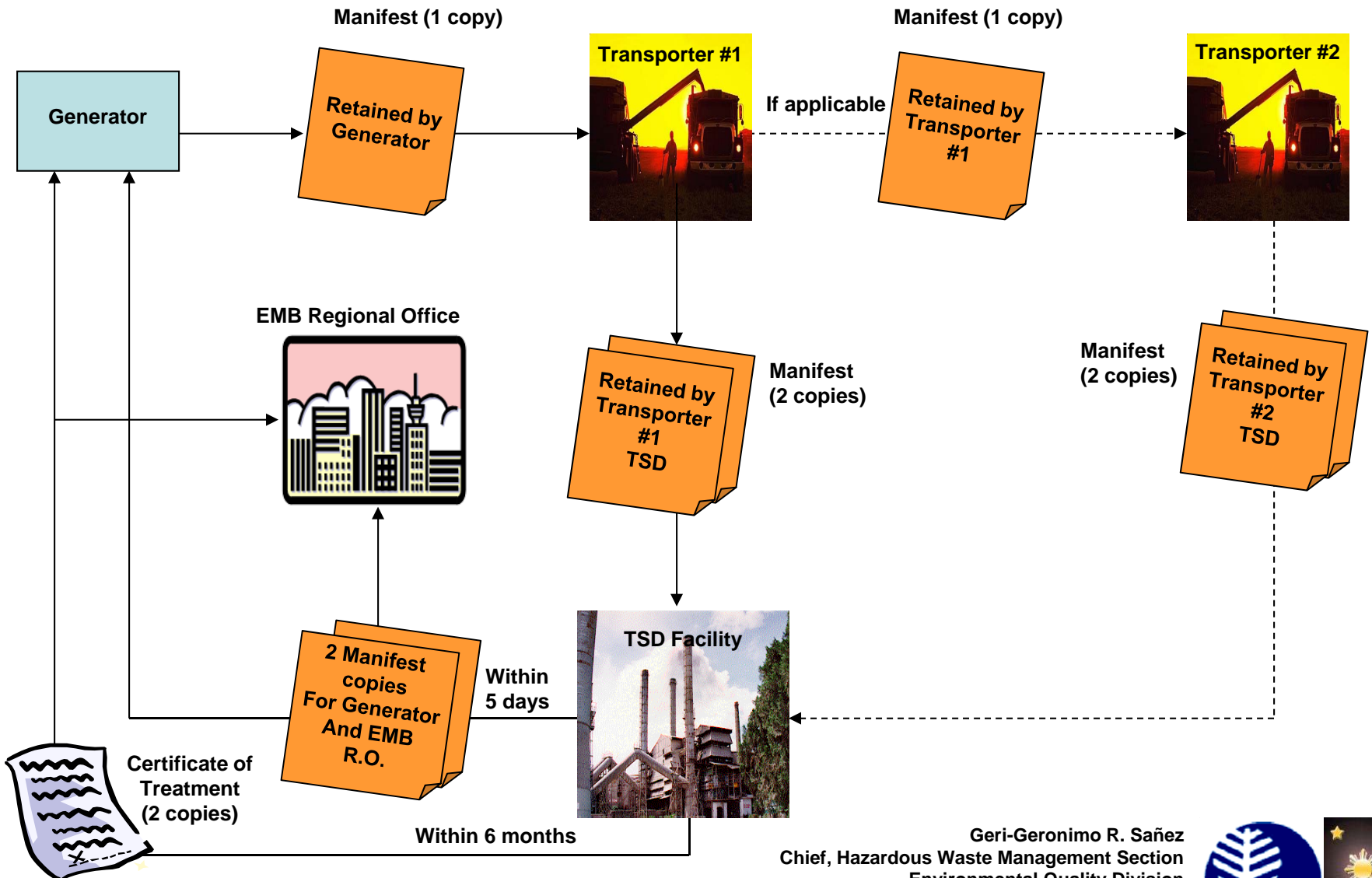
- Names, addresses. DENR Transporter ID numbers and telephone, fax numbers of wastes transporter
- Name, designation and date wastes received (or shipped) by wastes transporter

Section C: TSD Information

- Names/addresses, DENR ID numbers, and telephone and fax numbers of wastes treater (TSD facility)
- Name/designation, signature, and date waste received (or shipped) by treater (TSD facility).



R.A. 6969 Hazardous Wastes Tracking System



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Storage Facilities

Minimum Requirements for Hazardous Waste Storage Facilities

- a. It must be accessible in cases of emergency and for purposes of inspection and monitoring;
- b. The facility should be enclosed but adequately ventilated;
- c. The floors should be impermeable to liquids and resistant to attack by chemicals, not slippery and should be constructed so as to retain spillages;
- d. The facility should be properly secured and not easily accessed by unauthorized persons;
- e. Drums should preferably be stored upright on pallets and stacked no more than four (4) drums high;
- f. Drums should be raised on pallets or similar structures to allow passage of water and circulation of air;
- g. All containers should be checked regularly for leaks;
- g. There should be segregation of acids from bases and other hazardous wastes; and
- h. There should also be segregation of non-treated from treated hazardous wastes.





Labeling Requirements

Form of labels attached to vessels, containers, tanks and containment buildings

1. The size of the label is minimum 20cm x 30cm.
2. The color of the label is yellow for background and black for letters conspicuously marked in paint or other permanent form of marking
3. The material of the label should be scratch proof and resistant to tampering and weathering.
4. The basic form is provided in Table 5-1 (DAO 2004-36)
5. The label is accompanied by a symbol corresponding to characteristics of the hazardous waste contained in the vessel, container, or tank





Labeling Requirements

Position of the label attached to vessels, containers, and tanks

1. The label shall be attached to the side of the vessel, container, and tank.
2. If the vessel, container, or tank is used repeatedly, the label can be a plate and hung on the side of the vessel, container or tank that stores hazardous wastes.
3. In case of a containment building, all the types of hazardous wastes contained in the building should be included in the plate.

HAZARDOUS WASTE
NATIONAL LAW PROHIBITS IMPROPER DISPOSAL
IF FOUND, CONTACT THE NEAREST POLICE OR PUBLIC SAFETY AUTHORITY,
OR THE DEPT. OF ENVIRONMENT AND NATURAL RESOURCES

PROPER SHIPPING NAME _____

HAZARDOUS PROPERTIES:
 FLAMMABLE CORROSIVE REACTIVE TOXIC OTHER (SPECIFY) _____

DESCRIPTION: _____

GENERATOR INFORMATION: TELEPHONE _____

NAME _____
ADDRESS _____
CITY/PROVINCE _____

WASTE NO: _____ REGION NO: _____
ACCUMULATION START DATE _____ NATIONAL MANIFEST DOCUMENT NO. _____

HANDLE WITH CARE!
CONTAINS HAZARDOUS OR TOXIC WASTES





Symbols Accompanying the Label

Specifications of Symbols

1. The minimum size of the symbol is 25 cm x 25cm for vessels, containers, and tanks and 30cm x 30cm for conveyances carrying vessels, containers, and tanks.
2. Basic shape of the symbols is a square rotated 45 degrees to form a diamond.
3. At each of the four sides, a parallel line shall be drawn to form an inner diamond 95 % of the outer diamond.
4. The color should follow the colors specified in the figures.





Symbols Accompanying the Label



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Packaging Requirements

Requirements for vessels, containers, and tanks

1. be in good condition without leaks or damage,
 2. made from materials suitable for the characteristics of the hazardous waste to be stored,
 3. be equipped with a strong lid or cap to prevent spillage during the transport.
1. ensure that each vessel, container, or tank contains either only one type of waste or, when mixed, consist only of types of wastes with similar or mutually compatible characteristics (usually within a hazardous waste sub-category);
 2. for self-reacting hazardous wastes, ensure that voids are not left in the vessel, container, or tank;
 3. tightly seal hazardous waste in the vessel, container, or tank; and
 4. ensure that the used vessel, container and tank is cleaned before being reused for storing the hazardous waste incompatible with that previously stored.





Treatment, Storage & Disposal (TSD) Facilities

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Requirements for TSD Facilities

- a. secure a TSD Facility Permit from the EMB Central Office;
- b. designate a Pollution Control Officer (PCO)/Environmental Officer;
- c. comply with the waste acceptance requirements and the Manifest System;
- d. provide initial wastes acceptance procedure to ensure that the TSD facility shall not accept wastes beyond its capacity (including quantity and quality);
- e. submit residuals management plan including results of analysis of all hazardous wastes treated, recycled and recovered;
- f. conduct periodical (*quarterly*) inspection of the TSD facility in order to maintain proper function of the TSD facility;
- g. prepare and implement an emergency contingency plan;
- h. train its personnel and staff on the implementation of the emergency contingency plan and the hazard posed by improper handling, transport, and use of chemical substances and their containers; and
- i. submit a quarterly report on operation practices of the TSD facility to the EMB Central Office.





Categories of TSD Facilities

Prescribed Waste Treatment Facilities

Category Description

- A Facilities that conduct on-site disposal of hazardous wastes generated within the facility through industrial or commercial processes and activities other than disposal via sewer

- B Commercial or industrial hazardous waste thermal treatment facilities.
Facilities include those that conduct off-site thermal treatment (i.e. pyrolysis, autoclave, microwave and sterilization)

- C Landfills that accept hazardous waste for disposal.
Facilities that accept only inert hazardous waste residues for final disposal and not located on the waste generator's facilities.





Category Description

- D Facilities that recycle or reprocess hazardous waste which are not generated or produced at the facility. Facilities include those that receive offsite of hazardous waste and recover valuable materials from the hazardous wastes, use hazardous waste as input materials or fuel for production, or produce compost by biological treatment of hazardous waste. It also includes, but are not limited to, facilities that regenerate oil and solvents and recover metals from hazardous wastes.





Category Description

E

Facilities that immobilize, encapsulate, polymerize or treat hazardous wastes off-site.

Facilities include those that receive hazardous waste outside the premises and transform physical and/or chemical characteristics of the hazardous waste by physicochemical or thermal treatment in order to dispose of them into the facilities in Category C:

E-1 Facilities to solidify sludge, ashes, and other hazardous wastes

E-2 Facilities to melt and solidify inorganic sludge, ash, and other inorganic hazardous wastes

E-3 Physicochemical treatment facilities including neutralization, oxidation, and reduction of waste acid, waste alkali, or waste solution containing cyanide or chromium

E-4 Facilities to thermally decompose waste containing cyanide

E-5 Facilities to decompose PCB

E-6 Facilities to chemically treat infectious waste

E-7 Facilities to rinse containers that used to contain hazardous waste





Category Description

- F Facilities that store hazardous wastes, which were not generated at that facility
Facilities include those that store hazardous waste generated offsite awaiting treatment, disposal or export

F-1 Open space to place containers, vessels, or tanks containing hazardous waste

F-2 Buildings to store containers, vessels, or tanks containing hazardous waste

F-3 Built tanks to store liquid hazardous waste





TSD Facility Registration

(A) Requirements for establishing a TSD Facility

1. Environmental Compliance Certificate (ECC) or Initial Environmental Examination (IEE) under DAO 96-37 for the TSD facility has been secured;
2. A prospective waste treater has financial resources (*i.e. letter of credit, surety bond, trust fund*) to conduct proper hazardous waste treatment continuously and to cover liability for accidents





TSD Facility Registration

(B) Requirements for the issuance of a TSD Facility

- a. Duly accomplished *Application Form* show for in Appendix E.
- b. Emergency/Contingency Plans including Abandonment Plan
- c. Process flow and detailed description of each treatment/recycling/disposal process technologies including overall material balance identifying all/by-products, and end-products and residues
- d. Storage Management Plan for raw materials, residues, by products and end-products
- e. Long-term plan for the recycled/processed/end-product
- f. Accountability statement, duly notarized





WASTE ACCEPTANCE

Waste acceptance requirements

- a. Proper manifest(s) must accompany the shipment (written and certified documents from generator to transporter and to TSD facility).
- b. The containers are properly labeled as to the type of wastes and any of its potential hazards.
- c. An independent random analysis undertaken by the TSD facility to verify the type of hazardous waste indicated in its manifest.
- d. The waste is transported by a licensed and registered hazardous waste transporter.
- e. The waste type (class and description) and mode of treatment has been approved by the DENR EMB Central Office as indicated in the permit





Registered Treatment, Storage and Disposal (TSD) Facilities for Hazardous Wastes (as of December 2011)

Luzon	95 Facilities
Visayas	21 Facilities
Mindanao	11 Facilities
Total	127 Facilities





Registered Treatment, Storage and Disposal (TSD) Facilities for E-Wastes (as of September 2012)

Luzon	17 Facilities
Visayas	1 Facilities
Mindanao	0 Facilities
Total	18 Facilities





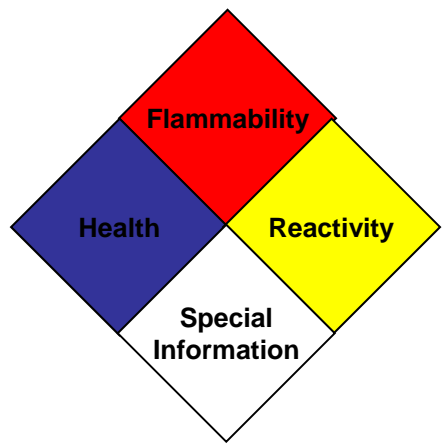
Capacity/Processes Employed

- [TSD Facilities for E-Wastes](#)





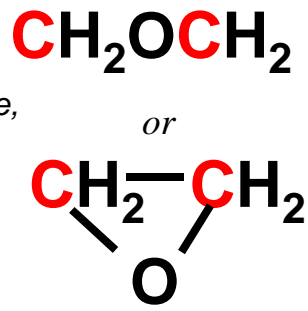
MARAMING SALAMAT PO!!!



www.emb.gov.ph



Ethylene oxide –
colorless gas
(flammable, reactive,
and explosive)



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