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T. K. SLOAT

Card,

*This is the most
drift and still
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POLICY FOR THE USE AND HANDLING OF INERTEEN

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POLICY FOR THE USE AND HANDLING OF INERTEEN

I. Introduction

INERTEEN is a synthetic transformer dielectric fluid made by the chlorination of a chemical, biphenyl, to give it non-flammable properties. Since this process stabilizes the fluid for transformer use, it also makes it difficult to destroy when it gets into the environment. Tests have been made throughout the world that show the undesirable nature of this type of fluid and its effect on some species of birds. It can be seen that if INERTEEN is to continue to be used in the transformer, a positive effort must be made to control and prevent pollution by this product.

INERTEEN can get into the environment during the manufacture, delivery, improper use, maintenance, repair and disposal of transformers. Experience has shown that it is necessary to control all aspects of the manufacturing and fluid handling process with emphasis on the possibilities of leakages and spillages to prevent any INERTEEN from getting into the environment. Close attention to good plant house-keeping is the main key to pollution control. Care must also be exercised to ensure that all test samples and INERTEEN contaminated solvents are collected for disposal in an acceptable manner.

Chemicals, such as INERTEEN are not permitted in any effluent from the plant. This is prohibited by the pure stream laws. INERTEEN and INERTEEN contaminated wastes are not acceptable in sanitary land-fills. This then requires that these wastes must be destroyed by incineration.

This problem is extremely serious and will undoubtedly be more closely controlled in the future. By following acceptable procedures the problems of any pollution of the environment by INERTEEN can be controlled.

II. General Safety Precautions

INERTEEN vapor is non-toxic to humans, except if taken internally, but care must be taken to avoid unnecessary contact with the liquid or vapors.

A. Vapors

The odor of INERTEEN is noticeable well below the maximum safe acceptable air concentrations. The maximum atmospheric concentration limit (8 hours) recommended is one milligram of INERTEEN per cubic meter of air.

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High concentrations of INERTEEN such as found inside a transformer tank or the vapors from hot INERTEEN must be avoided. The high concentrations of vapors can cause irritation of the eyes, nose, throat and upper respiratory tract. If contact with high concentrations of INERTEEN is necessary an approved gas mask or self-contained breathing apparatus must be worn.

The vapors produced when INERTEEN is decomposed by very high temperatures or from an electric arc will consist mainly of hydrogen chloride. This vapor is very unpleasant and irritating, thus giving ample warning of its presence. Under emergency conditions an approved gas mask or self-contained breathing apparatus must be worn in order to enter a space containing vapors of decomposed INERTEEN. If irritating odors are detected with the breathing apparatus in use, the person should go immediately into fresh air.

All gas masks, respirators, replacement cartridges, and self-contained breathing equipment must be Bureau of Mines approved and be maintained on a regular schedule in accordance with the manufacturers recommendation.

B. Fluid

Unlike oil, INERTEEN has virtually no fire hazard. However, INERTEEN can be irritating to the skin. Some people are more allergic to the solvent action of INERTEEN on the skin. Both the liquid and vapor are irritating to the eyes.

Under some conditions approved aprons and gloves should be worn to prevent direct contact with the fluids. The regular use of gloves is not recommended since the gloves are easily contaminated on the inside with INERTEEN from the hands.

After handling INERTEEN the hands should be washed thoroughly with warm soapy water. In the case of spillage onto clothing, the clothing should be removed as soon as practical and laundered or discarded in containers designated as "Scrap Burnable INERTEEN Waste."

C. Eye Protection

INERTEEN and its vapor are irritating to the eyes. Eye protection such as safety glasses with side shields or face shields must be worn at all times when handling INERTEEN.

The use of medicinal washes or detergents on the skin followed by an application of skin cream will eliminate any irritations resulting from INERTEEN coming in contact with an open cut or abrasion. Eye exposure to liquid INERTEEN should be irrigated immediately with large quantities of water from an approved eye

wash for fifteen minutes and then examined by the company physician. Persons developing a skin irritation due to contact with INERTEEN should be examined by the company physician.

D. Ingestion of INERTEEN

INERTEEN is moderately toxic if taken internally. Swallowing an ounce or more will cause irritation of the digestive tract and internal reaction. In such cases the person should go to the company physician immediately. Any condition that might result in a possible ingestion of INERTEEN should be avoided.

III. Receiving And Storage Of INERTEEN

INERTEEN is shipped from the manufacturer in tank cars, tank trucks, 55 gallon steel drums and in 5 gallon metal drums. All containers must be labeled as to contents and carry a precautionary label in reference to its environmental hazard. Every container should be inspected for leaks when received.

A. Tank Car Receiving

A special receiving area shall be allocated to INERTEEN tank cars. This area shall have provision for collecting reasonable amounts of INERTEEN if the car is found to be leaking when received. Any leak should be reported immediately to the Superintendent of Maintenance for appropriate action.

Drain pans must be provided to prevent spillage from unloading hoses and connections. INERTEEN tank cars do not have a bottom unloading valve and must be pumped from the top man-hole opening.

Benzene or other approved cleaning fluids used for cleaning the sampling devices must be collected in a "Scrap INERTEEN" drum for disposition. After use the sampling device shall be cleaned, dried and stored in a suitable location.

B. Steel Drums and Cans

On receipt all INERTEEN drums and cans must be carefully inspected for leaks. The containers should be stored indoors in an area especially selected for the purpose. A cement curb should enclose the area to provide a basin for containing the INERTEEN from at least two drums should they be damaged. The area must not have a drain which is connected to a sanitary or storm sewer.

C. Storage Tanks

All INERTEEN storage tanks should be erected on a cement base so that inspection can be made for leaks. A wall of cement must be erected around the tank to provide a holding basin to contain all the INERTEEN in the storage tank in the event of a tank failure. The base and wall must be constructed with INERTEEN

resistant expansion joints to prevent cracking of the cement. A sump drain with pump should be provided to remove any accumulation of surface water but must not be tied into a sanitary or storm sewer. The pump will be manually activated when required. The sump pump must also be of sufficient capacity to pump the INERTEEN from the storage tank basin into containers for salvaging the material or for scrapping in case of a spill. All tank piping must be exposed to permit inspection for leaks.

IV. Plant Manufacturing Area For Filling Units With INERTEEN

It is necessary to assume that in filling equipment with INERTEEN and further handling of this equipment that an INERTEEN spill will occur. Therefore it is necessary to provide facilities and a procedure for clean-up to prevent contamination.

A. INERTEEN Filling Area

The location of the INERTEEN filling area should be adjacent to the test area and final shipping area to minimize the danger of damage of units during handling.

The manufacturing area provided for filling equipment with INERTEEN shall have a cement floor with adequate cement curb around the entire area to act as a basin for containing the volume of INERTEEN from the largest production unit.

Floor drains must not be connected to a sanitary or storm sewer but to a sump provided with a manually activated pump capable of pumping spilled INERTEEN or other liquids into "Scrap INERTEEN" drums.

Adequate ventilation of the area shall be provided to maintain an atmospheric INERTEEN fume level below one milligram of INERTEEN per cubic meter of air. The exhaust from vacuum pump and ventilation of the area shall be directed thru fillers capable of removing INERTEEN vapors.

Drip pans shall be provided for hose connections and filling valves.

INERTEEN resistant aprons and gloves shall be available for special operations in which the personnel must come in contact with the INERTEEN.

Respirators, self-contained breathing apparatus, or gas-masks of a type approved by the Bureau of Mines must be available for use by personnel in high air concentrations of INERTEEN.

All manufacturing procedures must be directed toward preventing loss of INERTEEN to the environment. In case of an INERTEEN

spill the Superintendent of Maintenance should be contacted immediately to carry out the prescribed clean-up procedure.

B. Special Containers For Scrap Materials

1. Drums labeled "Scrap INERTEEN" must be available for handling all spills and waste INERTEEN from the sump, failed units, drip pans, sample jars etc.
2. Open-head drums with approved closure or other suitable containers labeled "Scrap Burnable INERTEEN Materials" must be available for handling scrap cellulose insulation, rags, paper pressboard, wood, sawdust, etc.
3. Separate containers for handling steel, copper, and aluminum, each adequately marked, shall be provided for the components of contaminated core and coil assemblies when tear downs are necessary.
4. Containers for supplies of saw-dust for absorbing small INERTEEN spills or clean-up must be provided. Speedy-dri or other clay absorbing materials are not recommended.

V. Conditioning INERTEEN

A. INERTEEN Conditioning Equipment

The conditioning equipment and intermediate storage tank should be located in the bulk storage area which is provided with an adequate curb to contain the INERTEEN held in the intermediate storage tank.

Two alternate procedures are satisfactory. The conditioning equipment and intermediate storage tank may be located in the manufacturing filling area since a curb is provided for containing a spill. If the conditioning equipment and storage tank is located in other areas it must be placed on a cement floor with an adequate curb surrounding the equipment and tank to provide a holding basin for all the INERTEEN in the intermediate storage tank in the event of a tank failure. A sump, not connected to a storm or sanitary sewer, may be provided to clean the holding basin in case of a spill. An alternate would be separate pumping equipment to pump the INERTEEN spill into "Scrap INERTEEN" drums for disposal.

B. Fullers' Earth

Conditioning of INERTEEN requires fullers' earth treatment. The spent fullers' earth in cartridges or bags when replaced shall be allowed to thoroughly drain over drip pans to remove as much liquid INERTEEN as possible. The cartridge units of steel mesh

construction containing fullers' earth shall be scrapped in the containers marked, "Steel Contaminated With INERTEEN", for disposition. Cloth bags filled with spent fullers' earth shall be disposed of in the containers marked "Scrap Burnable INERTEEN Waste".

The fullers' earth in the conditioning equipment shall be changed when necessary to maintain the INERTEEN within acceptable operating limits.

VI. Tear-Down Of INERTEEN Units For Repair Or Scrap

A. Tear-Down Procedure

1. Drain all the INERTEEN from the transformer from the lower tank valve into the conditioning tank or into drums labeled "Scrap INERTEEN" depending upon the laboratory reports of the condition of the INERTEEN. Allow sufficient time for all the INERTEEN to drain from the core and coil, (at least twelve hours) and again drain the INERTEEN from the tank.
2. Remove the core and coil assembly from the transformer and place it on a steel tear-down table having a raised edge to contain any run-off INERTEEN from the assembly. A center or other properly located drain shall be provided in the steel table to collect the run-off INERTEEN.
3. The personnel that dismantle the unit must wear approved gloves, apron and eye protection.
4. Place all materials in the appropriate salvage containers during the tear-down for later disposition.
5. The tear-down table shall be cleaned with kerosene or other approved solvents after the dismantling operation. The used fluids shall be placed in the "Scrap INERTEEN" drums for disposition.

VII. Handling Of Empty Containers Contaminated With INERTEEN

A. Tank Cars

When tank cars have been unloaded they will be re-sealed and returned to the manufacturers without further cleaning. These tank cars are used only for INERTEEN shipments and the cleaning will be done by the supplier.

B. Drums

Drums which contained new INERTEEN can be used for waste fluids

from the INERTEEN manufacturing section and should be plainly marked "Scrap INERTEEN".

Drums which must be retired from use shall be washed twice with one gallon portions of kerosene, benzine, or other approved solvent before crushing, delivery to scrap dealers or used for other disposal. The wash fluid shall be disposed of in drums marked "Scrap INERTEEN".

C. 5-Gallon Drums

5-Gallon drums which contained new INERTEEN when empty shall be washed twice with kerosene, benzine or other approved solvent before scrapping or re-using. The wash solvent shall be placed in a "Scrap INERTEEN" drum.

D. Sample Bottles

Sample bottles and other small containers used for obtaining samples of INERTEEN for test from any source such as transformers, storage tanks, filling lines etc. must be rinsed at least twice with benzine or kerosene before re-use or scrapping. The rinse solvent shall be placed in a "Scrap INERTEEN" drum.

VIII. Purchases Of INERTEEN By Manufacturing Divisions, M & R Plants And E & S Groups

No direct sales of any quantity of INERTEEN will be made to any customers nor will authorizations be issued to the Monsanto Company to ship INERTEEN except to those locations manufacturing INERTEEN equipment or M & R Plants and E & S Groups having repair or service orders for the direct use of INERTEEN under the supervision of Westinghouse personnel. This is to eliminate any possible chance for INERTEEN to be obtained for uses of any kind except in transformers or capacitors.

A. Manufacturing Plants

INERTEEN for use in manufacturing and filling new equipment will be ordered from the Monsanto Company as a stock material. Orders for INERTEEN for make-up or other purposes will be referred to the nearest M & P Plant or E & S Group depending on the need for the INERTEEN.

B. District Offices

Orders for INERTEEN will be referred to the nearest M & R Plant or E & S Group depending upon the need for the INERTEEN and will be made a part of a service contract on specific equipment.

C. M & R Plants

Orders for INERTEEN for use in repairing equipment will be issued

by the M & R Plants to Monsanto for shipment to the repair plants only and must be used on customers orders. All repair shops performing service work on INERTEEN transformers must set aside an area in the repair shop to handle all INERTEEN service work. This shop area must be altered to provide the same safeguards as established in the manufacturing locations including curbing around the area to contain an accidental spill, containers for holding materials contaminated with INERTEEN, containers for scrap INERTEEN and safety equipment for employees. All scrap materials must be disposed of at authorized locations that have incinerators capable of safely destroying the INERTEEN. Only the INERTEEN contained in the equipment will be returned to the customer.

D. E & S Groups

Service orders to maintain INERTEEN equipment will be accepted and the necessary INERTEEN will be ordered by the E & S group from Monsanto Co. for shipment to the E & S facilities. The required INERTEEN will be taken to the customers premises and additions of make-up as other requirements supervised. An excess INERTEEN will be returned to the E & S storage area.

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March 16, 1972