MONSANTO COMPANY

SPECIALTY PRODUCTS DIVISION

STANDARD MANUFACTURING PROCESS

FOR

PYRANOLS, DEPARTMENT 259

INERTEENS, DEPARTMENT 259

SUPERSEDES: STANDARD MANUFACTURING PROCESS FOR THE MANUFACTURE OF PYRANOLS AND INERTEENS IN DEPARTMENT 259, DATED DECEMBER, 1970, AND ALL AMENDMENTS.

PREPARED BY: G. L. JOHNSON

APPROVED BY:

A.E. LEISY, GENERAL SUPERINTENDENT

W.R. RICHARD, RESEARCH

J.R. SAVAGE, MANUFACTURING MANAGER

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name	characteristics	hazard	symptoms	first aid	handling instructions
INTERMEDIATES - BY-PRODUCTS:					
CRUDE AROCLORS	PURPLISH TO BLACK OILY LIQUID, PETROLEUM-LIKE ODOR, USUALLY HANDLED HOT; CONTAINS LESS THAN 0.05% UNDISSOLVED FERRIC CHLORIDE.	INHALATION IRRITANT (HOT VAPORS). THERMAL BURNS.	COUGHING, IRRITATING TO BREATHE. REDNESS AS FOR ANY OTHER THERMAL BURN.	GET OUT OF VAPORS. WASH AREA TO REMOVE AROCLOR AND TREAT AS ANY OTHER BURN.	WEAR RUBBER GLOVES, EYE PROTEC
HYDROGEN CHLORIDE (HCL)	COLORLESS GAS; HIGHLY CORROSIVE; NON-FLAMMABLE. READILY DISSOLVES IN WATER TO FORM AN ACID.	IRRITANT TO EYES AND RESPIRATORY TRACT. CHEMICAL BURNS TO SKIN. THE ACID COMBINES WITH MANY METALS AND RELEASES EXPLOSIVE HYDROGEN GAS.	IRRITATION TO EYES, SKIN AND THROAT.	FLUSH EYES WITH WATER FOR 15 MINUTES. FLUSH CONTACTED AREA WITH WATER. REPORT TO DISPENSARY.	AVOID BREATHING HCl VAPORS OR CONTACT WITH SKIN. USE SCOTT AIR PAK WHEN IN CONTAMINATED AREA.
FINISHED GOODS:					
MCS-1109 CAPACITOR 21 AROCLOR 1232	WATER-WHITE OILY LIQUIDS; CHLORINATED BIPHENYLS AND SOME UNREACTED BIPHENYL. FLASH POINT LOWER THAN THOSE PRODUCTS THAT ARE CHLORINATED BIPHENYLS ONLY.	INHALATION IRRITANT (HOT VAPORS). THERMAL BURNS.	COUGHING, IRRITATING TO BREATHE. REDNESS AS FOR ANY OTHER THERMAL BURN.	GET OUT OF VAPORS. WASH AREA TO REMOVE AROCLOR AND TREAT AS ANY OTHER BURN.	WEAR RUBBER GLOVES, EYE PROTEC
AROCLORS (#15) 1016 1242 1248 1254 1260 1262	WATER-WHITE OILY LIQUIDS; CHLORINATED BIPHENYLS; VISCOSITY INCREASES WITH DEGREE OF CHLORINATION.	INHALATION IRRITANT (HOT VAPORS) THERMAL BURNS.	COUGHING, IRRITATING TO BREATHE. REDNESS AS FOR ANY OTHER THERMAL BURN.	GET OUT OF VAPORS. WASH AREA TO REMOVE AROCLOR AND TREAT AS ANY OTHER BURN.	WEAR RUBBER GLOVES, EYE PROTEC
THERMINOL FR-C FR-LOW TEMP., INERTEEN 54201KJ (#16)	WATER-WHITE OILY LIQUID; BLENDS OF AROCLORS AND CHLOROBENZENES	INHALATION IRRITANT (HOT VAPORS) THERMAL BURNS. SOMEWHAT MORE IRRITATING THAN AROCLORS BECAUSE CHLOROBENZENES ARE PRESENT.	COUGHING, IRRITATING TO BREATHE. REDNESS AS FOR ANY OTHER THERMAL BURN.	GET OUT OF VAPORS. WASH AREA TO REMOVE AROCLOR AND TREAT AS ANY OTHER BURN.	WEAR RUBBER GLOVES, EYE PROTEC
PYRANOL A13B3D PYRANOL A13B3DP INERTEEN PPO INERTEEN 70/30	WATER-WHITE OILY LIQUID; BLENDS OF AROCLORS, CHLOROBENZENES, AND EITHER GLYCIDYL PHENYL ETHER OR UNOX EPOXIDE.	INHALATION IRRITANT (HOT VAPORS) THERMAL BURNS. SOMEWHAT MORE IRRITATING THAN #15 OR #16 (ABOVE) BECAUSE THE CHLORIDE SCAVENGER IS PRESENT.	COUGHING, IRRITATING TO BREATHE. REDNESS AS FOR ANY OTHER THERMAL BURN.	GET OUT OF VAPORS. WASH AREA TO REMOVE AROCLOR AND TREAT AS ANY OTHER BURN.	WEAR RUBBER GLOVES, EYE PROTEC
INERTEEN 54201 CN	WATER-WHITE OILY LIQUID; BLEND OF AROCLOR AND GLYCIDYL PHENYL ETHER.	INHALATION IRRITANT (HOT VAPORS) THERMAL BURNS. SOMEWHAT MORE IRRITATING THAN AROCLORS BECAUSE THE CHLORIDE SCAVENGER IS PRESENT.	COUGHING, IRRITATING TO BREATHE. REDNESS AS FOR ANY OTHER THERMAL BURN.	GET OUT OF VAPORS. WASH AREA TO REMOVE AROCLOR AND TREAT AS ANY OTHER BURN.	WEAR RUBBER GLOVES, EYE PROTEC
MONTAR	BROWN TO BLACK VISCOUS LIQUID; HANDLED AT TEMPERATURES UP TO 300°C. A SOLID AT AMBIENT TEMPERATURES.	VAPORS ARE A RESPIRATORY IRRITANT; THERMAL BURN HAZARD.	COUGHING, IRRITATION; THERMAL BURN.	GET OUT OF VAPORS; TREAT AS ANY OTHER BURN.	USE RESPIRATOR WHEN AROUND VAPORS; USE GLOVES, EYE PROTEC & HANDLE WITH EXTREME CARE WHI MOLTEN.

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DEPARTMENT 259 - STANDARD MANUFACTURING PROCESS

PYRANOLS AND INERTEENS

APPENDIX J

SAFETY AND TOXICITY DATA

(Sections I & II of Appendix J refer to all of Dept. 246/259, only part of which is used to produce Pyranols/Inerteens.)

I. SAFETY EQUIPMENT

A. Fire Extinguishers

1. Carbon dioxide - 1st floor, NE of lean-to
2. Dry chemical - 1st floor, SE of lean-to
3. Dry chemical - 2nd floor, west wall
4. Dry chemical - 2nd floor, west wall

B. Gas Masks

1. 1st floor, on sprinkler house
2. 1st floor, outside west wall of repair room
3. 2nd floor, on west wall
4. Control room, east wa-l
5. 4th floor, on handrail by #1 chlorinator
6. 4th platform, Aroclor column (2)

C. Scott Air Pak

1. Outside west wall of lean-to

D. Emergency Clothing

1. Box on 2nd floor, west wall

E. Safety Showers with Eye Wash

1. Batch department, 1st floor
2. Batch department, 2nd floor
3. Batch department, 4th floor
4. Continuous department, 1st floor
5. Continuous department, 2nd floor
6. Continuous department, 3rd floor
7. West side of tank farm (alarm in control room)
8. Control room (eye bath only).

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II. SAFETY PRECAUTIONS AND DATA

A. Personal Safety Equipment:

Mandatory	Recommended
1. Hard hat	1. Rubber or canvas gloves
2. Safety glasses	2. Goggles
3. Safety shoes	3. Rubber overshoes

B. Fire

None of the raw materials or finished products are fire hazards. Fire extinguishers are available in many areas throughout the department.

C. Toxicity (see next section).

D. Miscellaneous

There are many accidents that can occur which may be classified as health and safety hazards. These accidents can result from steam leaks, product leaks, and other minor hazards normally present to some degree in a chemical plant.

E. Safety Record (Depts. 246/259)

1. Lost Time Accidents - last occurred on January 28, 1948.

2. Serious Injuries - the last two serious injuries were:

   a. April 12, 1973 - Broken finger from dropped T/C lid.

   b. February 15, 1972 - Finger laceration while working on T/C.

3. Minor Injuries - for the year 1973, there were two minor injuries, for an indices of 0.10 minor injuries/man/year in Departments 246/259.

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III. TOXICITY

AROCLORS

1. Recommended Threshold Limit Value (T.V.L.)

   a. Aroclor 1242 - 1.0 mg per cubic meter of air. (0.50 action level)

   b. Aroclor 1254 - 0.5 mg per cubic meter of air. (0.25 action level)

2. Hazards and Control

   a. Inhalation: Absorption is chiefly by inhalation. Concentrations in the workroom atmosphere should be maintained below the recommended levels. Where the chlorinated diphenyls are used at room temperatures, the hazard of inhalation is considered slight or absent. When these materials are subjected to elevated temperatures, the process either should be completely enclosed or other adequate mechanical exhaust ventilation must be provided to reduce concentrations to safe levels.

   b. Skin contact: Operations and handling procedures should be such as to avoid the possibility of prolonged or repeated skin contact. Contaminated clothing must be laundered before reuse.

   c. Eye contact: Goggles or face shield should be used where there is a possibility of liquid splashes.

3. Emergency Treatment: Skin surfaces exposed to chlorodiphenyls should be thoroughly washed with soap and water at once. If clothing has been contaminated, it should be removed promptly.

   If exposure to a high vapor concentration occurs, as in the case of spills at elevated temperatures, the patient should be moved from exposure and kept at rest until seen by a physician. Oxygen should be administered if breathing is difficult.

   Eyes contaminated with chlorodiphenyl should be irrigated with water for at least 15 minutes and the patient should be seen by a physician.

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III. TOXICITY (Cont'd)

Special procedures: Persons who are regularly or repeatedly exposed to chlorodiphenyls should be examined periodically to detect early evidence of skin irritation and/or liver damage. Persons with known liver disease should not be exposed to repeated contact with the chlorodiphenyls.

* The information in this section is from the Hygienic Guide Series published by the American Industrial Hygiene Association. The particular pamphlet is "Chlorodiphenyls", Jan.-Feb., 1965.

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