FORM 203

CHEMICALS  INDUSTRIES

INTEROFFICE / LAKE CHARLES, LA.

TO Whom It May Concern

DATE January 2, 1969

FROM Roselyn Berger

SUBJECT Hygiene and Toxicology of Organic Area Chemicals LD-597-B (P-982)

The left side of this report presents the hygiene and toxicology of inorganic and organic area chemicals at the Lake Charles Plant. Subject to the discretion of operation supervisors this side can be used in control rooms and labs of th plant as it suggests quick first aid treatment with regard to skin absorption, chemical in eye, injection and inhalation. The fire, explosive, disaster potential and dangerous reactions are also described for all the chemicals.

The right side of this report is intended primarily for the physician, safety director and the Production Area Superintendents. It is suggested that this side be distributed judiciously since the chemical name is given as well as the code name for all chemicals described. Also, the physician category contains alarming facts helpful to a physician but not necessarily beneficial to operators, chemists, etc.

I point out these facts so that this report may be distributed and used in the proper manner. I hope that the above description will guide you in circulating your copy whether you have one or both sides of this report.

RB/jl

SL 049899

HYGIENE, TOXICOLOGY, FIRE, EXPLOSION AND DISASTER HAZARD STUDY ON ORGANIC AREA CHEMICALS

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CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARD and DANGEROUS REACTIONS
✓ Chlorine	Remove contaminated clothing. Wash with water, then, soap and water. Report to First Aid.	Flush with water for 15 minutes, then use 0.5% solution of pontocaine or use aqueous topical anesthetic. Report to First Aid. Call a Specialist.	Patient may vomit spontaneously, but do not induce vomiting. Discourage coughing. If conscious, give lime water, milk of magnesia or plain water. Report to First Aid.	Threshold limit 1 ppm. Penetrating and irritating odor. No cumulative effect. Remove patient from contaminated area. Elevate head and back. Give artificial respiration if necessary. Keep warm. Give oxygen treatment for maximum of 1 hour. Report to First Aid.	Moderate fire hazard; it can react to cause fire or explosions upon contact with turpentine, ether, ammonia gas, illuminating gas, hydrocarbons, hydrogen and powdered metals. Slight explosive hazard by reaction with reducing agents. Dangerous disaster hazard; shock can shatter the compressed gas container with explosive force; when heated, it emits highly toxic fumes; will react with water or steam to produce toxic and corrosive fumes of hydrogen chloride.
✓ Oxygen	Liquid oxygen can cause severe burns and tissue damage. Treat as you would a burn. Report to First Aid.	Report to First Aid	Report to First Aid	If a person passes out from excess oxygen: Remove patient from contaminated area. Give artificial respiration. Report to First Aid.	Though itself nonflammable, it is [redacted]. Liquid oxygen can explode on contact with readily oxidizable material, especially at high temperature. If containers of compressed oxygen are broken due to shock or exposed to high temperature, an explosion and fire may result. Pure oxygen will cause things to burn spontaneously. Do not expose normal hydrocarbon oils and grease to oxygen. Should a fire occur at an O_2 line, play water on the line to keep it cool.
Nitrogen	Report to First Aid.	Report to First Aid.	Report to First Aid.	Odorless gas. Remove patient from oxygen d ficient area. If severe inhallation, give oxygen treatment. Report to First Aid.	Nonflammable.

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CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARD AND DANGEROUS REACTIONS
Copper Chloride	Remove contaminated clothing. Wash with water. Report to First Aid.	Flush with copious quantities of water. Report to First Aid.	Report to First Aid.	Report to First Aid.	Chlorides in general are a dangerous disaster hazard. When heated to decomposition or on contact with acids they evolve highly toxic chloride fumes.
Potassium Chloride	Remove contaminated clothing. Wash with water. Report to First Aid.	Flush with copious quantities of water. Report to First Aid.	Report to First Aid.	Report to First Aid.	Chlorides in general are a dangerous disaster hazard. When heated to decomposition or on contact with acids they evolve highly toxic chloride fumes.
✓ GDL	Remove contaminated clothing. Wash with water. Report to First Aid.	Flush with copious quantities of water. Report to First Aid.	Slightly toxic. Induce vomiting. Report to First Aid.	Threshold limit 50 ppm Not unusual odor. Remove patient from contaminated area. Give artificial respiration if necessary. Report to First Aid.	Flammable and very reactive DO NOT mix w/ ADH, EPN, THF
ADY	Remove contaminated clothing. Wash with water, then, with soap and water. Report to First Aid.	Flush with water for at least 15 minutes. Report to First Aid. Call a Specialist.	Emetic is indicated. Give patient salt water or soapy water and induce vomiting. Report to First Aid.	Threshold limit 200 ppm. Penetrating fruity odor. Remove patient from contaminated area. Give artificial respiration Give oxygen treatment if necessary. Report to First Aid.	Dangerous fire hazard when exposed to heat or flame; can react vigorously with oxidizing materials. Severe explosive hazard when exposed to flame. ADY has a low boiling point, is very volatile, and has a very low flash point. To fight fire: carbon dioxide, dry chemical or carbon tetrachloride.
DMH	Remove contaminated clothing. Wash with water or alcohol.	Flush with copious quantities of water.		Threshold limit 0.5 ppm. Fishy or amine-like odor. Remove patient from contaminated area. Give artificial respiration. Give oxygen treatment	Dangerous fire hazard when exposed to heat or flame. Highly dangerous disaster hazard. When heated to decomposition, it emits highly toxic fumes of nitrogen compounds; can react vigorously with oxidizing materials. To fight fire: foam, carbon dioxide,

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✓	EPE	Remove contaminated clothing. Wash with water, then, soap and water. Report to First Aid.	Flush with water for at least 15 minutes. Call a specialist. Report to First Aid.	Induce vomiting by sticking finger down throat or by giving soapy or strong salty water to drink. Repeat until vomit is clear. Report to First Aid.	Remove patient to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Report to First Aid.	[redacted]. Explosive limit and flash point unknown.
✓	MLE	Remove contaminated clothing. Wash with water. Report to First Aid.	Flush with copious amounts of water. Report to First Aid.	Induce vomiting. Report to First Aid.	Threshold limit is 20 ppm. Penetrating, ammoniacal odor. Report to First Aid.	[redacted] Do not expose to open flame. Volatile. Flash point is 72°F. May form explosive vapor-air mixtures.
✓	NPL	Remove contaminated clothing. Wash with water, then, soap and water. Report to First Aid.	Flush with copious quantities of water. Report to First Aid.	Report to First Aid.	Threshold limit is 200 ppm. Alcohol-like odor. No cumulative effect. Remove patient from contaminated area. Give artificial respiration. Give oxygen if necessary. Report to First Aid.	Flash point is 87°F. [redacted] Dangerous fire, [redacted] ter hazards when exposed to heat or flame; can react vigorously with oxidizing materials. Lower explosive limit is 2.6% and upper explosive limit is 13.5% in air. To fight fire; carbon dioxide, dry chemical or carbon tetrachloride. NPL can form explosive vapor-air mixtures.
✓	TYL	Remove contaminated clothing. Brush off chemical immediately. Wash with water, then soap and water. Report to First Aid.	Flush continuously with water for 15 minutes; then use soap and water Report t First Aid.	Not severe enough to cause death. Report to First Aid.	Not severe enough to cause death. Remove patient from contaminated area. Give artificial respiration. Give oxygen, if necessary. Report to First Aid.	Moderately dangerous disaster hazard. When heated it emits toxic fumes. Avoid oxidizing agents.

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	CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARDS AND DANGEROUS REACTIONS
✓	BLM	Remove contaminated clothing. Wash with soap and water. Report to First Aid.	Flush with water for at least 15 minutes Report to First Aid.	Induce vomiting by tickling back of tongue or giving on emetic such as salt water. Report to First Aid.	Threshold limit 400 ppm. Sweetish, disagreeable odor. Caution: Highly toxic concentration of vapor are obtained at room temperature. Remove patient from contaminated area. Keep warm. Give artificial respiration, if necessary. Report to First Aid.	Flash point less than 0°F. Burns violently. Extremely flammable. BLM is capable of polymerizing exothermically and reacting vigorously with compounds having a labile hydrogen, including water, alcohols, polyols, phenols, thiols, ammonia, amines and acids. Forms explosive vapor-air mixtures. Burns violently. To fight fire: carbon dioxide, dry chemical or carbon tetrachloride.
✓	DPE	Remove contaminated clothing. Wash with water. Slightly soluble in water.	Flush with copious quantities of water for at least 15 min. Use 2 or 3 drops of 0.5% Pontocaine solution or a topical anesthetic. No oils or oily ointments should be instilled. ! Call a specialist.	If patient is conscious, encourage the drinking of large quantities of water followed by dilute vinegar, lemon juice, cider or other weak acid juices, such as orange or lime. Administer a demulcent such as raw egg, milk or cream, barley water or olive oil. If the patient does not vomit spontaneously, stimulate vomiting by having him tickle the back of the throat. Keep patient warm and quiet. Administer oxygen r artificial respiration if	Threshold limit 10 ppm. Ammonia like odor. Remove patient from contaminated area. Give artificial respiration, if necessary. Give oxygen. Keep patient warm but not hot.	Dangerous fire and disaster hazard when exposed to heat or flame; can react vigorously with oxidizing materials. DPE should not be allowed to come in contact with metallic mercury as a violent explosion may occur. To fight fire: foam, carbon dioxide, dry chemical or carbon tetrachloride.

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CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARD AND DANGEROUS REACTION
✓ Dowtherm A	Remove contaminated clothing. Wash with alcohol. Insoluble in water. Report to First Aid.	Soluble in alcohol, ether and benzene. Report to First Aid.	Report to First Aid.	Geranium-like odor. Remove patient from contaminated area. Give artificial respiration, if necessary. Control vapor concentration to 1 ppm to avoid complaints and possible nausea. Odor is irritating to intolerable below safe toxic limit. Because of low vapor pressure and low order of toxicity, this does not present a hygiene hazard and there is no need further discussion. Report to First Aid.	[redacted] because temp[redacted]atures f[redacted] use are above the flash poi[redacted] Dowtherm A can react with oxidi[redacted]g materials. To fight fire; [redacted]rbon dioxide, dry chemical or ca[redacted] tetrachloride.
✓ EPN	Remove contaminated clothing. Wash with soap and water. Any blistering from prolonged contact should be treated as a burn. Report to First Aid.	Flush eyes with copious quantities of water. Report to First Aid.	Induce vomiting by mechanical incitation to promote gagging. Emetics are not always reliable. Give universal antidote of 2 parts activiated charcoal, 1 part magnesium oxide and 1 part tannic acid. Oral administration of oil after poisoning appears unadvisable. Report to First Aid.	Threshold limit 5 ppm. Chloroform like odor. Remove patient from contaminated area and keep quiet. Give oxyge[redacted] if necessary. Cumulative effect from repeated doses. Report to First Aid.	[redacted] when ex[redacted]sed to heat or flame. Dangerous di[redacted]ster hazard. When heated to deco[redacted]position it emits highly toxic fumes [redacted] phosgene; can react with oxidizi[redacted]ma-terials. To fight fire: wat[redacted], foam, carbon dioxide, dry chemical [redacted]r carbon tetrachloride. EPN and its de[redacted]atives which contain the epoxide group[redacted]e generally unstable in the presence of acidi[redacted] or basic substances. EPN, glycidol, and [redacted]lycidol ethers have been observed to react vigorously to explosively with strong sulfuric acid and with anhydrous metal halides, such as stannic and ferric chlorides, even when these reagents were slowly added to the epoxide at room temperatures; glycidol was also found to react almost

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CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARD AND DANGEROUS REACTIONS
✓ Ammonia	Flush with water, followed by lemon juice, vinegar or 2% acedic acid solution. Then flush with water again Remove contaminated clothing which may be frozen to the skin. Treat as a burn. Report to First Aid.	Flush with copious quantities of water. Then use 0.5% pontocaine solution or water soluble surface anesthetic. Report to First Aid.	Call a Physician. Drink water followed by dilute vinegar, lemon, cider, orange or lime juices. Administer a demulcent (raw egg, milk or cream, barley water or olive oil). Do not induce vomiting if patient is in shock, extreme pain or unconscious. If patient is conscious, induce vomiting. Place patient face down with head lower than hips. Report to First Aid.	Threshold limit 100 ppm Pungent odor with no cumulative effect. Remove patient from contaminated area. Give artificial respiration. Give oxygen treatment, if necessary. Report to First Aid.	Treat as a flammable gas, that is, no burning, welding, etc. and no admixing with air. Keep cl_2 and NH_3 separated. Ammonia will react with chlorine, mercury, calcium, silver oxide and bleach to form explosive compounds. Water is the best extinguishing medium. Dry chemical or carbon dioxide may also be used to fight fire.
✓ Calcium Chloride	Brush off calcium residue immediately. Remove contaminated clothing. Wash with water. Report to First Aid.	Flush with copious quantities of water. Report to First Aid.	Report to First Aid.	Remove patient from contaminated area. Give artificial respiration, if necessary. Report to First Aid.	
Carrene 2 (Freon 11	Remove contaminated clothing. Insoluble in water. Soluble in ethanol and ethyl ether. Report t First Aid.	Report to First Aid.	Report to First Aid.	Threshold limit 1000ppm Colorless and odorless. Remove patient from contaminated area. Give artificial respiration. Give oxygen, if necessary. Report to First Aid.	Moderate disaster hazard. When heated to decomposition, it emits highly toxic fumes of chlorides and fluorides.

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on ORGANIC AREA CHEMICALS

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✓ ADH	Remove contaminated clothing. Report to First Aid.	Report to First Aid.	Report to First Aid.	Remove patient from contaminated area. Give artificial respiration. Give oxygen, if necessary. Report to First Aid.	[redacted]
Chloroglycerine	Remove contaminated clothing. Report to First Aid.	Report to First Aid.	Report to First Aid.	Remove patient from contaminated area. Give artificial respiration. Give oxygen, if necessary. Report to First Aid.	Flammable
Sodium Methylate	Remove contaminated clothing. Report to First Aid.	Report to First Aid.	Report to First Aid.	Remove patient from contaminated area. Give artificial respiration. Give oxygen, if necessary. Report to First Aid.	Flammable
✓ Caustic & Cell Liquor	Wash with water 1 to 2 hours. Remove contaminated clothing. Use 5% ammonium chloride solution available in plastic bottles at each shower in caustic area. Report to First Aid.	Flush with water for at least 15 minutes. Use 0.5% pontocaine solution or aqueous topical anesthetic. Report t First Aid. Call a Specialist.	Give dilute vinegar or a 5% solution of ammonium chloride, if available. If not available, encourage patient to drink large quantities of water without delay. Then administer whites of eggs or mineral oil. Report to First Aid.	Threshold limit 2 milligrams per cubic meter of air. Remove patient from contaminated area. Give artificial respiration, if necessary. Report to First Aid.	Will not support combustion and will not burn. NaOH will react with water or steam to produce heat and will attack organic tissue.

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CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARD AND DANGEROUS REACTIONS
Sodium Nitrate	Remove contaminated clothing. Brush off chemical immediately. Wash with water. Report to First Aid.	Flush with copious quantities of water. Report to First Aid.	Report to First Aid.	Odorless crystals. Report to First Aid.	Moderate fire hazard. When mixed with organic matter it will ignite on friction. It will explode when heated to over 1000°C or when mixed with cyanides. Therefore, it is also a dangerous disaster hazard.
Disodium Phosphate	Remove contaminated clothing. Brush off chemical immediately. Wash with water. Report to First Aid.	Flush with copious quantities of water. Report to First Aid.	Report to First Aid.	Remove patient from contaminated area. Report to First Aid.	
Morpholine	Remove contaminated clothing. Wash with water. Completely soluble in water. Report to First Aid.	Flush with copious quantities of water. Report to First Aid.	Morpholine is soluble in water, alcohol, ether and acetone. Report to First Aid.	Amine odor. Remove from contaminated area. Give artificial respiration. Give oxygen, if necessary. Report to First Aid.	[redacted] when exposed to heat or flame. Dangerous when heated to decomposition, it emits highly toxic fumes of oxides of nitrogen; can react with oxidizing materials. To fight fire: carbon dioxide, dry chemical and carbon tetrachloride.
Sodium Sulfite	Remove contaminated clothing. Brush off chemical immediately. Wash with water. Slightly soluble in water. Report to First Aid.	Flush with copious quantities of water. Report to First Aid.	Report to First Aid.	Remove patient from contaminated area. Report to First Aid.	Dangerous disaster hazard. When heated to decomposition it emits highly toxic fumes of sulfur dioxide; they will react with water, steam or acids to produce a toxic and corrosive material.

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CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARD AND DANGEROUS REACTIONS
✓ Sodium Chromate	Remove contaminated clothing. Brush off chemical immediately. Wash with water. Report to First Aid.	Flush with copious quantities of water. Report to First Aid.	Report to First Aid.	Threshold limit 0.1 milligram/m^3 air. Report to First Aid.	
✓ Sulfuric Acid	Remove contaminated clothing. Wash with water, then, soap and water or neutralize with mild alkaline solution. Report to First Aid.	Flush with water for ½ hour. Never use ointment. An eye anesthetic may be used for pain. Report to First Aid. Call a Specialist.	If conscious, have patient wash mouth with water. Give at least 1 oz. of milk of magnesia or aluminum hydroxide gel well diluted with water. If these are not available, drink milk mixed with whites of eggs. Do not induce vomiting or pass a stomach tube. Call a physician. Report to First Aid.	Threshold limit 1 milligram/m^3 air. Odorless gas, however, fuming sulfuric has a sharp penetrating effect. Remove patient from contaminated area. Give artificial respiration. Give oxygen if necessary. Report to First Aid.	Moderate fire hazard by chemical reaction. It is a powerful oxidizer. Sulfuric acid can ignite upon contact with combustibles. Dangerous disaster hazard. When heated it emits highly toxic fumes; will react with water or steam to produce heat; can react with oxidizing and reducing
✓ EDC	Remove contaminated clothing. Wash affected area thoroughly with soap and water. Apply lanolin ointment. Report to First Aid.	Flush eyes with copious quantities of water. Report to First Aid.	Induce vomiting by drinking mustard water, salty water or soapy water. After vomiting, administer a tablespoon of epsom salts. Report to First Aid. Call a Physician.	Threshold limit 50 ppm. Chloroform-like odor. Remove patient from contaminated area. Give artificial respiration. Give oxygen treatment, if necessary. Report to First Aid.	Dangerous fire hazard if exposed to heat or flame. Moderate explosive hazard in the form of vapor when exposed to flame. Dangerous disaster hazard. When heated to decomposition it emits highly toxic fumes of phosgene; can react vigorously with oxidizing materials. To fight fire: water, foam, carbon dioxide, dry chemical or carbon tetrachloride.

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Phosgene	Remove contaminated clothing. Wash thoroughly with an abundance of water. Phosgene decomposes to carbon dioxide and hydrogen chloride. Report to First Aid.	Flush eyes with copious quantities of water. Report to First Aid.	Report to First Aid.	Threshold limit 1 ppm. Odor of new mown hay or green corn. Remove patient from contaminated area. Give artificial respiration. Give oxygen treatment, if necessary. Report to First Aid.	Highly dangerous disaster hazard. When heated to decomposition or on contact with water or steam, it will react to produce toxic and corrosive fumes of carbon dioxide and hydrogen chloride.
VC	Remove contaminated clothing immediately. Rapid evaporation may result in frostbite. Wash thoroughly with water. Use loose dressings of petroleum jelly. Report to First Aid.	Flush with copious quantities of water. Report to First Aid. Place patient in care of a Specialist.	Report to First Aid.	Threshold limit 500 ppm. Odorless or sweet smelling gas. Odor is not an adequate warning property. Remove patient from contaminated area. Give artificial respiration. Give oxygen, if necessary. Place in bed with head lowered. Report to First Aid. Call a Physician.	Vapors form flammable mixtures with air at all temperatures above -78°C (-108.4°F). Dangerous fire hazard when exposed to heat or flame. Large fires of this material are practically inextinguishable. Severe explosive hazards in the form of vapor when exposed to heat or flame. Very dangerous disaster hazard. When heated to decomposition it emits highly toxic fumes of phosgene; can react vigorously with oxidizing materials. To fight fire: carbon dioxide, dry chemical or carbon tetrachloride.

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cis-1,2 Dichloro-ethylene	Remove contaminated clothing. Wash thoroughly with water. Slightly soluble in water. Soluble in alcohol. Report to First Aid.	Flush with copious quantities of water. Report to First Aid.	Report to First Aid.	Threshold limit 200 ppm. Pleasant odor. Remove patient from contaminated area. Give artificial respiration. Give oxygen, if necessary. Report to First Aid.	Dangerous fire hazard when expos to heat or flame. Moderate explosi hazard in the form of vapor when x-posed to flame. Dangerous disas r hazard. When heated to decompos ion it emits highly toxic fumes of c o-rides; can react vigorously with oxidizing materials. To fight f e: water, foam, carbon dioxide, dry chemical or carbon tetrachloride.
trans-1,2 Dichloroethylene	Remove contaminated clothing. Wash thoroughly with water. Slightly soluble in water. Soluble in alcohol. Report to First Aid.	Flush with copious quantities of water. Report to First Aid.	Report to First Aid.	Threshold limit 200 ppm. Pleasant odor. Remove patient from contaminated area. Give artificial respiration. Give oxygen, if necessary. Report to First Aid.	Dangerous fire hazard when expos l o heat or flame. Moderate explosi e hazard in the form of vapor when x-posed to flame. Dangerous disas r hazard. When heated to decompos ion it emits highly toxic fumes of c o-rides; can react vigorously with oxidizing materials. To fight fir water, foam, carbon dioxide, dry chemical or carbon tetrachloride.
CC3	Remove contaminated clothing. Wash thoroughly with water. Report to First Aid.	Flush with copious quantities of water. Report to First Aid.	Induce vomiting by tickling the throat or giving an emetic such as salt water. Report to First Aid. Call a Physician.	Threshold limit 50 ppm. Pleasant sweet etheral odor. Remove patient from contaminated area. Keep warm and quiet. Give artificial respiration, if necessary. Report to First Aid.	Non-explosive. Will not support c - bustion. Slight fire hazard when exposed to high heat; otherwise practically non-flammable. Dangerous Dis-aster hazard. When heated to de om-position it emits highly toxic f es of phosgene.

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✓ TRI	Remove contaminated clothing. Wash area with soapy water. Apply lanolin ointment. Report to First Aid.	Flush with copious amounts of water for at least 15 minutes. Report to First Aid.	Induce vomiting by drinking mustard water, salty water or soapy water. Induce vomiting 3 times. After vomiting, administer a tablespoonful of Epsom Salt in a glass of water. Call a Physician. Report to First Aid.	Threshold limit 100 ppm. Chloroform-like odor. Remove patient from contaminated area Keep quiet and calm. Give artificial respiration. Give oxygen, if necessary. Give hot tea or coffee, if conscious. Report to First Aid.	Slight fire hazard when exposed to heat or flame. Flames or arcs should not be used in closed equipment which contains any solvent residue or vapor. Dangerous disaster hazard. When heated to decomposition it emits highly toxic fumes of chlorides. To fight fire carbon dioxide, dry chemical or fo[illegible].
✓ TCE	Remove contaminated clothing. Wash all exposed surfaces with soap and water. Report to First Aid.	Flush with copious quantities of water. Report to First Aid.	Report to First Aid.	Maximum allowable concentration 25 to 100 ppm. Pleasant odor. Remove patient from contaminated area. Give artificial respiration. Give oxygen, if necessary. Report to First Aid.	Dangerous disaster hazard. When heated to decomposition it emits highly toxic fumes of chlorides.
✓ PER	Remove contaminated clothing. Wash with soap and water. Apply lanolin ointment. Report t First Aid.	Flush with copious quantities of water for at least 15 minutes. Report to First Aid. Call a Specialist.	Induce vomiting by drinking soapy water or salt water. Induce vomiting 3 times. Follow with a tablespoon of Epsom salt in a glass of water. Report to First Aid. Call a Physician.	Threshold limit - 200 ppm. Chloroform-like odor. Remove patient from contaminated area Keep quiet and warm. Give artificial respiration. Give oxygen, if necessary. If conscious give tea or coffee. Report to First Aid. Call a Physician.	Nonflammable and non-explosive. It will not support combustion. Dangerous disaster hazard. When heated to decomposition it emits highly toxic fumes of chlorides.

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TeCE	Remove contaminated clothing. Wash with soap and water. Apply lanolin ointment.	Flush with copious quantities of water for at least 15 minutes.	Induce vomiting by drinking soapy water or salt water. Induce vomiting 3 times. Follow with a tablespoon of Epsom Salt in a glass of water.	Threshold Limit 5 ppm. Chloroform-like odor. Remove patient from contaminated area. Give artificial respiration. Give oxygen, if necessary. Keep quiet and warm. If conscious, give tea or coffee.	Nonflammable. Moderate explosive hazard in contact with sodium or potassium. Dangerous disaster hazard. When heated it emits highly toxic decomposition products.
	Report to First Aid.	Report to First Aid.	Report to First Aid. Call a Physician.	Report to First Aid. Call a Physician.	
PCE	Remove contaminated clothing. Wash with soap and water. Apply lanolin ointment.	Flush with copious quantities of water for at least 15 minutes.	Induce vomiting by drinking soapy water or salt water. Induce vomiting 3 times. Follow with a tablespoon of Epsom Salt in a glass of water.	Safe concentration below 121 ppm. Sweetish odor. Remove patient from contaminated area. Give artificial respiration Give oxygen, if necessary. Keep quiet and warm.	Moderate fire hazard when exposed to heat or flame. Moderate explosive hazard by spontaneous chemical reaction Dehalogenation by reaction with alkalies, metals, etc., will produce spontaneously explosive chloroacetylene. Dangerous disaster hazard. When heated to decomposition PCE emits highly toxic fumes of chlorides. To fight fire: water, carbon dioxide, dry chemical or
	Report to First Aid.	Report to First Aid.	Report to First Aid.	Report to First Aid.	

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Hexa	Remove contaminated clothing. Wash with soap and water. Report to First Aid.	Flush with copious quantities of water for at least 15 minutes. Report to First Aid.	Report to First Aid.	Remove patient from contaminated area. Give artificial respiration. Give oxygen, if necessary. Keep quiet and warm. Report to First Aid.	Slight explosive hazard by spontaneous chemical reaction with alkalies, metals, etc. Will produce spontaneously explosive chloroacetylenes. Dangerous disaster hazard. When heated to decomposition it emits highly toxic fumes of phosgene.
Cs	Remove contaminated clothing. Report to First Aid.	Report to First Aid.	Report to First Aid.	Threshold limit 50 ppm. Remove patient from contaminated area Give artificial respiration. Give oxygen if necessary. Report to First Aid.	Moderate fire hazard when exposed to heat or flame. Dangerous disaster hazard. When heated to decomposition it burns and emits highly toxic fumes of chlorides; can react vigorously with oxidizing materials. To fight fire: water, foam, carbon dioxide, dry chemical or carbon tetrachloride.
Chloral	Remove contaminated clothing. Wash with water. Report to First Aid.	Flush with copious quantities of water. Report to First Aid.	Report to First Aid.	Threshold limit 100 ppm. Irritating odor Remove patient from contaminated area. Give artificial respiration. Give oxygen if necessary. Report to First Aid.	Moderately dangerous disaster hazard. When heated to decomposition it emits highly toxic fumes.
Carbon Monoxide	Carbon monoxide is absorbed only through the lungs. Report to First Aid.	Carbon monixide is absorbed only through the lungs. Report to First Aid.	Carbon monixide is absorbed only through the lungs. Report to First Aid.	Threshold limit 100 ppm. Odorless gas. Remove patient from contaminated area. Give artificial respiration. Give oxygen, if necessary. Keep patient lying down, head down slightly. Report to First Aid.	Explosive limits by volume in air 12.5% to 74.2%. Dangerous fire hazard when exposed to flame. Severe explosive hazard when exposed to heat or flame. To fight fire: carbon dioxide, dry chemical or water spray.

HYGIENE, TOXICOLOGY, FIRE, EXPLOSION AND DISASTER HAZARD STUDY ON ORGANIC AREA CHEMICALS

CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARD AND DANGEROUS REACTIONS
Carbon Dioxide	Wash with water. Remove contaminated clothing. Contact of CO_2 snow may cause burn. Report to First Aid.	Report to First Aid.	Report to First Aid.	Threshold limit 5000 ppm. Odorless gas. Remove from contaminated area. Give artificial respiration. Give oxygen, if necessary. Report to First Aid.	Slightly dangerous disaster hazard.
CC4	Remove contaminated clothing. Wash thoroughly with running water. Report to First Aid.	Flush with copious quantities of water. Then use a 0.5% pontocaine solution or aqueous topical anesthetic. Report to First Aid.	Induce vomiting or give salt water. If vomiting occurs, give more water to wash out stomach. Report to First Aid. Call a Physician.	Threshold limit 10 ppm Strong ethereal odor. Remove patient from contaminated area. Give artificial respiration. Give oxygen if necessary. Report to First Aid. Call a Physician.	Nonflammable and non-explosive. Slight disaster hazard. When heated to decomposition carbon tetrachloride emits highly toxic fumes of phosgene.
Muriatic Acid	Remove contaminated clothing while flushing with water. Keep warm. Report to First Aid.	Flush with copious quantities of water. Then use a 0.5% solution of pontocaine or aqueous topical anesthetic. Report to First Aid. Call a Specialist.	Drink copious amounts of lime water or milk of magnesia or as a last resort plain water. Patient may vomit, but do not induce vomiting. Do not attempt to use a stomach tube. Report to First Aid. Call a Physician	Threshold limit 5 ppm Sharp, pungent, irritating odor. Remove patient from contaminated area. Give artificial respiration Give oxygen, if necessary. Keep warm and comfortable. Report to First Aid.	Muriatic acid is not considered a fire hazard. Hydrochloric acid attacks most metals with evolution of explosive hydrogen. Dangerous disaster hazard. When heated to decomposition it emits highly toxic fumes of chlorides; will react with water or steam to produce toxic and corrosive fumes.

HYGIENE, TOXICOLOGY, FIRE, EXPLOSION AND DISASTER HAZARD STUDY ON ORGANIC AREA CHEMICALS

CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARD AND DANGEROUS REACTIONS
✓ THF	Remove contaminated clothing. Wash with water. Polyvinyl alcohol gloves recommended. Report to First Aid.	Flush with copious quantities of water. Report to First Aid.	Report to First Aid.	Threshold limit 200 ppm. Ether-like odor. Remove patient from contaminated area. Keep warm and quiet until symptoms disappear. Give artificial respiration. Give oxygen, if necessary. Report to First Aid.	Dangerous fire hazard. Upper or lower explosive limits in air are 11.8% and 2% by volume respectively. Moderate explosive hazard by chemical reaction. Unstabilized THF forms thermally explosive peroxides on exposure to air. Dangerous disaster hazard. When heated it emits toxic fumes; can react with oxidizing materials. To fight fire: foam, dry chemical, carbon dioxide or carbon tetrachloride.
✓ ACE	Remove contaminated clothing. Wash with soap and water. Discard shoes contaminated by ACE. Report to First Aid.	Flush with copious quantities of water for at least 15 minutes. Use 0.5% pontacaine solution or topical anesthetic. Report to First Aid. Call a Specialist.	Induce vomiting, if conscious, with water, mustard water, soapy water, salty water or emetic. Follow by oral administration of a pint of 1% solution of sodium thiosulfate. If signs of poisoning are noted administer amyl nitrite pearls. Give artificial respiration if necessary. Report to First Aid. Call a Physician.	Threshold limit 20 ppm. Peach seed kernel odor. Remove patient from contaminated area is sufficient, if conscious. If unconscious or breathing impaired, administer amyl nitrite. Give arm-lift method of artificial respiration when amyl nitrite is being given. Give oxygen if breathing is difficult. Report to First Aid. Call a Physician.	Flammable with a flash point of 30° F. (-1° C). Its vapors, when mixed over a range of 3% to 17% by volume of air, are explosive. Dangerous fire hazard when exposed to heat or flame. Moderate explosive hazard when exposed to flame. Dangerous disaster hazard. When heated to decomposition or on contact with acid or acid fumes, it emits highly toxic fumes of cyanides; can react vigorously with oxidizing materials. When it is uninhibited or contaminated with strong alkalis, polymerization accompanied by a rapid increase of pressure may occur. Mechanical foam (alcohol type) is the best extinguishing agent. Carbon dioxide, dry chemical or carbon tetrachloride may also be used as extinguishing agents.

HYGIENE, TOXICOLOGY, FIRE, EXPLOSION AND DISASTER HAZARD STUDY ON ORGANIC AREA CHEMICALS

CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARD AND DANGEROUS REACTIONS
✓ Methane	Report to First Aid.	Report to First Aid.	Report to First Aid.	Maximum permissible limit is 1 volume %. Remove patient from contaminated area. Give artificial respiration. Give oxygen, if necessary. Report to First Aid.	Dangerous fire and explosive hazard when exposed to heat or flame. To fight fire: carbon dioxide or dry chemical.
MC	Remove contaminated clothing. Wash thoroughly with running water. Report to First Aid.	Flush with copious quantities of water for at least 15 minutes. Report to First Aid. Call a Specialist.	Report to First Aid.	Threshold limit 500 ppm. Remove contaminated clothing. Give artificial respiration. Give oxygen, if necessary. Report to First Aid.	MC will be classed as flammable. Dangerous disaster hazard. When exposed to open flames or heated to decomposition, it emits highly toxic fumes of chlorides
VDC	Wash with water, then, wash again with soap and water. Remove contaminated clothing and wash. Report to First Aid.	Flush with copious amounts of water for at least 15 minutes. Report to First Aid.	Report to First Aid.	Maximum allowable concentration 25 ppm. Sweetish smell that resembles CCl_4 or chloroform. Remove contaminated clothing Give artificial respiration. Give oxygen if necessary. Report to First Aid.	Dangerous fire hazard when exposed to heat or flame. Moderate explosive hazard in the form of gas when exposed to heat or flame. The explosive limits of VDC (% by volume with air) are 7-16. Highly dangerous disaster hazard. When heated to decomposition it emits highly toxic fumes; can react vigorously with oxidizing materials. To fight fire: water, foam, carbon dioxide, dry chemical or carbon tetrachloride.

HYGIENE, TOXICOLOGY, FIRE, EXPLOSION AND DISASTER HAZARD STUDY ON ORGANIC AREA CHEMICALS

CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARD AND DANGEROUS REACTIONS
PNE	Remove patient from contaminated area. Wash exposed surfaces with water. Clothing, including shoes and socks, can be removed while under the shower. Report to First Aid.	Flush with copious quantities of water for at least 15 minutes. If pain persists it is permissible to use a 0.5% pontocain solution. Report to First Aid. Call a Specialist.	The patient should instantantly drink large quantities of water. Induce vomiting by giving a warm salt solution or tickling back of throat. Keep patient quiet and warm. Report to First Aid.	Threshold limit 5 ppm. Characteristically sweet odor. Remove patient from contaminated area. Give artificial respiration Give oxygen, if necessary. Gargle throat with water. Report to First Aid.	Moderate fire hazard when exposed to heat or flame. Dangerous disaster hazard. When heated phenol emits toxic fumes; can react with oxidizing materials. To fight fire: carbon dioxide, dry chemical or carbon tetrachloride.
TBL	Remove contaminated clothing. Wash exposed body surfaces with soap and water. Report to First Aid.	Flush with copious quantities of water for 15 minutes. Report to First Aid.	Report to First Aid.	Threshold limit 100 ppm. Remove patient from contaminated area. Administer artificial respiration if necessary. Report to First Aid.	Flammable liquid. Dangerous fire hazard. When exposed to heat or flame, it can react with oxidizing materials. Moderate explosive hazard. To fight fire: carbon dioxide, dry chemical, or carbon tetrachloride.
TAL	Remove contaminated clothing. Wash exposed body surfaces with soap and water. Report to First Aid.	Flush with copious quantities of water for 15 minutes. Report to First Aid.	Induce vomiting. Report to First Aid.	Unknown maximum allowable concentration. Mild odor. Remove patient from contaminated area. Report to First Aid.	Flammable. Dangerous fire hazard when exposed to heat or flame. When heated it emits acrid fumes; can react with oxidizing materials. To fight fire: carbon dioxide, dry chemical or carbon tetrachloride.

HYGIENE, TOXICOLOGY, FIRE, EXPLOSION AND DISASTER HAZARD STUDY ON ORGANIC AREA CHEMICALS

CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARD AND DANGEROUS REACTIONS
DOR	Remove contaminated clothing. Wash exposed surfaces with soap and water. Report to First Aid.	Flush eyes thoroughly with water. Report to First Aid.	Report to First Aid.	Etheral odor. Remove from contaminated area. Administer artificial respiration if victim is overcome by vapors. Report to First Aid.	Dangerous fire and disaster hazard when exposed to heat or flame; can react vigorously with oxidizing materials. To fight fire: foam, carbon dioxide, dry chemical or carbon tetrachloride.
HXE	Report to First Aid.	Report to First Aid.	Report to First Aid.	Threshold limit 500 ppm. Remove patient from contaminated area. Give artificial respiration, if breathing has stopped. Report to First Aid.	Dangerous fire or explosive hazard when exposed to heat or flame. Its vapors form explosive mixtures with air at all temperatures down to -15°F. Dangerous disaster hazard, it can react with oxidizing materials. To fight fire: carbon dioxide, dry chemical or carbon tetrachloride.
MBL	Remove contaminated clothing. Wash thoroughly with soap and water. Report to First Aid.	Flush with copious quantities of water for at least 15 minutes. Report to First Aid.	Report to First Aid.	Remove patient from contaminated area. Give artificial respiration. Give oxygen if necessary. Report to First Aid.	Slight fire hazard when heated. MBL emits acrid fumes; can react with oxidizing materials.
SBL	Remove contaminated clothing. Wash with water. Report to First Aid.	Flush with copious quantities of water. Report t First Aid.	Report t First Aid.	Threshold limit 25 ppm. Remove patient from contaminated area. Give artificial respiration. Give oxygen, if necessary. Report to First Aid.	Dangerous fire hazard when exposed to heat or flame; can react with oxidizing materials. The ignition temperature of SBL in air and oxygen are respectively 763°F (406°C) and 711°F (377°C). To fight fire: water spray, carbon dioxide, dry chemical or carbon tetrachloride.

HYGIENE, TOXICOLOGY, FIRE, EXPLOSION AND DISASTER HAZARD STUDY ON ORGANIC AREA CHEMICALS

CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARD AND DANGEROUS REACTIONS
IPL	Remove contaminated clothing. Wash thoroughly with water. Report to First Aid.	Flush with copious quantities of water for at least 15 minutes. Report to First Aid.	Report to First Aid.	Threshold limit 400 ppm. Remove patient from contaminated area. Give artificial respiration. Give oxygen, if necessary. Report to First Aid.	Dangerous fire hazard and moderate explosive hazard when exposed to heat or flame. Dangerous disaster hazard! Keep away from heat and open flame; can react vigorously with oxidizing materials. The ignition temperature of IPL is 853°F. The lower limit of flammability is 2.02% by volume in air and the upper limit is 11.80%. To fight fire: carbon dioxide, dry chemical or carbon tetrachloride.
Ferric Chloride	Remove contaminated clothing. (Anhydrous) Do not wash immediately with water. Wipe off excess with a clean cloth, then wash with large quantities of water. (Liquid) Wash immediately and thoroughly with water. Report to First Aid.	Flush with copious quantities of water. Rinse with a weak solution of sodium bicarbonate or boric acid. Report to First Aid.	Induce vomiting. Report to First Aid.	Remove patient from contaminated area. Give artificial respiration. Give oxygen, if necessary. Report to First Aid.	(Anhydrous) Dangerous disaster hazard. When heated to decomposition it emits highly toxic fumes of hydrochloric acid; will react with water to produce toxic and corrosive fumes. (Liquid) Corrosive to many common materials of construction.
✓ Ethylene	Remove contaminated clothing. Treat same as frostbite. Wash affected area thoroughly with cold water and massage to stimulate circulation to affected part. Report to First Aid.	Flush with copious quantities of water. Report to First Aid.	It has a (liquid) freezing effect. Report to First Aid.	Threshold limit 1000 ppm. Sweetish odor. Remove patient from contaminated area. Give artificial respiration, if necessary. Report to First Aid.	Dangerous fire and disaster hazard when exposed to heat or flame; can react with oxidizing materials. Ethylene is a non-corrosive (gas). Ethylene reacts with sulfur mono chloride to form mustard gas which is a blistering agent, lung irritant as well as eye and throat irritant. The reaction on nitrogen tetroxide and ethylene forms 1,2 dinitroethane (explosive). Moderate explosive hazard when exposed to flame. It forms an explosive mixture with air, oxygen or cl, if mixed as a gas. Explosive limits are 3% to 29% by volume in air. Auto ignition temperature is 1009°F. To fight fire: carbon dioxide, dry chemical or fine water spray.

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CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARDS AND DANGEROUS REACTIONS
PPL	Strong primary skin irritant. Also, toxic by absorption. In case of contact immediately remove contaminated clothing and shoes. Flush eyes or skin with plenty of water for at least 15 minutes. Report to First Aid. Call a physician.	In case of accidental contact, immediately wash eye with plenty of water at least 15 minutes. Report to First Aid. Call a specialist.	No specific antidote is known. In case of swallowing immediately call a physician. Also induce vomiting by sticking finger down throat or by giving soapy or strong salt water to drink. Repeat until vomit is clear. Report to First Aid. Call a physician.	Vapors extremely irritating. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Report to First Aid. Call a physician.	Flash point 90 -100°F. (Open cup) Use water fog, water foam or spray in case of fire. For spills: avoid breathing vapor (gas masks for organic vapors, if indicated). Flush to sewer with plenty of water. Due to the presence of triple bond, it should be regarded as a high energy compound capable of reacting violently under certain conditions. Contact of undiluted propargyl alcohol with basic materials may lead to uncontrolled reaction. In distilling, propargyl alcohol should be made slightly acidic and distillation should not be carried to dryness.
Chlorine Dioxide	Wash with copious quantities of water. Remove contaminated clothing. Report to First Aid.	Flush with copious quantities of water. Report to First Aid. Call a specialist	Report to First Aid. Call a specialist.	Threshold limit is 0.1 ppm. Remove from contaminated area. Keep at rest until seen by a physician. Report to First Aid.	Dangerous fire hazard as it is a powerful oxidizer. Severe explosion hazard when heated to 100°C. or by chemical reaction Dangerous disaster control. Shock will explode it. When heated to decomposition it emits highly toxic fumes of chlorine. It will react with water or steam to produce toxic and corrosive fumes of hydrochloric acid. It can react vigorously with reducing materials. High explosive hazard when concentration in air exceeds 10%. Explosion and fire may be caused by sparks at 20°C. and 36mm partial pressure of chlorine dioxide.

CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARDS AND DANGEROUS REACTIONS
Ethane	Remove contaminted clothing. Report to First Aid.	Report to First Aid. Call a specialist.	Report to First Aid. Call a physician	Remove patient from contaminated area. No systematic effects are produced by breathing an atmosphere containing ethane in concentrations below 50,000 ppm (5%). Report to First Aid.	Dangerous fire hazard when exposed to heat or flame; can react vigorously with oxidizing materials. To fight fire: carbon dioxide or dry chemical. Moderate explosive hazard when exposed to flame. Explosive range 3.3 - 10.6%. Dangerous disaster control hazard upon exposure to heat or flame.
TCP	Remove contaminated clothing. Report to First Aid.	Report to First Aid. Call a specialist.	Report to First Aid. Call a physician.	Remove patient from contamined area. Report to First Aid.	Flash point is 460°F. (closed cup) . Slight fire hazard when exposed to heat or flame. To fight fire use water, foam, carbon dioxide, dry chemical or carbon tetrachloride. Dangerous disaster control hazard. When heated to decomposition, it emits highly toxic fumes of oxides of phosphorus. It can react with oxidizing materials. Boiling point is 410° C. (slight decomposition). Tri-orthocresyl phosphate, an isomer of TCP,boils at 400 °C.

CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARDS AND DANGEROUS REACTIONS
MIBK	Wash with water, then soap and water. Remove contaminated clothing. Report to First Aid.	Flush with water for 15 minutes. Report to First Aid. Call a specialist.	Call a physician. Report to First Aid.	Threshold limit is 100 ppm. Distinct irritating odor. Remove patient from contaminated area. Report to First Aid.	Flash point (closed cup) is 73° F. Explosive limits 1.4 to 7.5% by volume in air. Flammable solvent. *Dangerous fire hazard when exposed to heat or flame. To fight fire use foam, carbon dioxide, dry chemical or carbon tetrachloride. Dangerous disaster control hazard upon exposure to heat or flame. It can react vigorously with oxidizing materials.
Tars	See TeCE page 13	See TeCE page 13	See TeCE page 13	See TeCE page 13	See TeCE page 13
Helium	Report to First Aid.	Report to First Aid. Call a specialist.	Report to First Aid	Remove patient from contaminated area. Report to First Aid.	Slightly dangerous disaster control; shock can shatter its compressed gas container with explosive force. Non-flammable gas.
Hydrogen	Report to First Aid.	Report to First Aid. Call a specialist.	Report to First Aid.	Remove patient from contaminated area. Report to First Aid.	Highly dangerous fire hazard when exposed to heat or flame. To fight fire use carbon dioxide or dry chemical. Severe explosion hazard when exposed to heat or flame. Explosive range: 4.1 - 74.2%. Dangerous disaster control. Shock can shatter the compressed gas container with explosive force, can react vigorously with oxidizing materials.

CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhalation)	FIRE, EXPLOSION, DISASTER HAZARDS AND DANGEROUS REACTIONS
HCl	Flush immediately with water. Remove contaminated clothing. In cases of severe burns, shock symptoms, such as rapid pulse, sweating, and collapse may occur at any time. Keep patient lying on his back and keep warm until physician arrives. No oils or ointment should be applied without specific direction from physician.	Irrigate eyes with copious quantities of water for at least 15 minutes. The eyelids should be held apart during the irrigation to insure contact of water with all accessible tissues of the eyes and lids. Instill into the eyes 2 or 3 drops of a 0.5% solution of pontocaine or equally effective aqueous topical anesthetic. If a physician is not available, the eye irrigation should be continued for a second period of 15 minutes.	If a person has swallowed HCl and is conscious, he should immediately be made to drink copious amounts of lime water or milk of magnesia. Use plain water if these are not readily available. Do not use sodium bicarbonate! The patient may be expected to vomit spontaneously, but no attempt should be made to induce vomiting. Do not attempt to use a stomach tube. Do not give anything by mouth to an unconscious patient. While waiting for the physician, watch the unconscious patient closely for evidence of obstruction to breathing.	Threshold limit is 5 ppm. Remove patient from contaminated area immediately. If breathing has stopped, artificial respiration should be given by either the Schoefer prone pressure or the Eve Rocking method. If oxygen is available, and one familiar with oxygen inhalation is present, oxygen should be given for at least 15 to 30 minutes. Keep the patient warm.	Dangerous disaster control! When heated to decomposition, it emits highly-toxic fumes of chlorides; will react with water or steam to produce toxic and corrosive fumes.
	Report to First Aid. Call a physician.	Report to First Aid. Call a specialist.	Report to First Aid. Call a physician.	Report to First Aid. Call a physician.	

CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARDS AND DANGEROUS REACTIONS
Activated Alumina	Insoluble in water, slightly soluble in acid and alkalis. Report to First Aid.	Report to First Aid. Call a specialist.	Report to First Aid.	Move into fresh air. Recommended maximum atmospheric concentration is 50 million particles per cubic foot of air. The white fumes possess a musty odor and are detectable at low concentrations. Report to First Aid.	Fire and explosion are both hazards when the metal is in powder or dust form.
Activated Carbon	Brush off skin. Remove contaminated clothing Report to First Aid.	Flush with water. Report to First Aid. Call a specialist.	Call a physician. Report to First Aid.	Remove patient from contaminated area. Report to First Aid.	Slight fire hazard when exposed to heat or flame. Spontaneous heating. Use water to fight fire. Slight explosive hazard when dust is exposed to flame.
CDP	Insoluble in water. Report to First Aid.	Report to First Aid. Call a specialist.	Report to First Aid. Call a physician.	Remove from contaminated area. Report to First Aid.	Boiling point is 734° F. Flash point is 450° F. Slight fire hazard when exposed to heat or flame. To fight fire, use carbon dioxide, dry chemical or carbon tetrachloride. Moderately dangerous disaster control hazard. When heated to decomposition, it emits toxic fumes.

CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARDS AND DANGEROUS REACTIONS
o-Dichlorobenzene	This is a clear or slightly yellowish liquid. Remove contaminated clothing. Flush with water, then wash with soap and water Report to First Aid.	The eyes should be flushed immediately with flowing water for 15 minutes. Report to First Aid. Call a specialist.	Induce vomiting. An emetic such as soapy water should be taken followed by drinking as much water as possible. Report to First Aid. Call a physician.	Threshold limit is 50 ppm. Characteristic aromatic odor. Remove patient to fresh air. Keep patient warm and comfortable. If respiratory embarrassment is evident, oxygen inhalations will give relief. If breathing has ceased, aritificial respiration should be applied. Report to First Aid.	Moderate fire hazard when exposed to heat or flame. Explosive limits are: lower limit 2% in air by volume; upper limit 9% in air by volume. Flash point is 155°F. o-Dichlorobenzene is combustible. At elevated temperatures flammable vapors are given off. To fight fire use water, foam, carbon dioxide, dry chemical or carbon tetrachloride. Dangerous disaster hazard. When heated to decomposition, it emits toxic fumes of chlorides; can react vigorously with oxidizing materials.

CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARDS AND DANGEROUS REACTIONS
Sodium Chlorate	Wash with water, then soap and water. Avoid protective creams and greases inasmuch as chlorates may combine with certain greases and oils to form flammable mixtures. Report to First Aid.	Irrigate eyes with large amounts of water for 15 minutes. Report to First Aid. Call a specialist.	Cooling saline taste. Induce vomiting by giving a pint or more of warm salty water (2 tablespoons to a pint of water) or giving warm soapy water. If necessary the patient may be required to stick his finger down the back of his throat to induce vomiting. Keep patient as comfortable as possible and warm. Do not give anything by mouth to an unconscious person. Report to First Aid. Call a physician	Remove patient from contaminated area. Report to First Aid.	Severe fire and explosion hazard when intimately mixed with organic or other oxidizable substances. When sodium chlorate comes in contact with strong acids it can generate toxic chlorine dioxide and may even cause explosions, since the reaction is exothermic. Fire and explosion hazards are involved when sodium chlorate comes in contact with sulfur, sulfides, phosphorus, sugars, alcohols, solvents, ammonium compounds, powdered metals, oils, grease, sawdust, lint, vegetable dusts, paint and painted metals. Temperatures above 300°C. cause decomposition and release of oxygen. Water is the most effective means of controlling fires. Avoid protective creams and greases, inasmuch as chlorates may combine with certain greases and oils to form flammable mixtures. Contaminated clothing is dangerously flammable, being subject to ignition by friction, percussion, welding torches, cigarette smoking, etc.

CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARDS AND DANGEROUS REACTIONS
AIBN	Wash with an abundance of soap and water. Remove contaminated clothing.	Flush eye with copious amount of water for at least 15 minutes.		Remove patient from contaminated area.	Avoid heating AIBN in the open because it decomposes, releasing nitrogen gas and highly toxic by-products. It is recommended that AIBN be stored at temperatures not exceeding 75°F.(24°C.) It is classifed as a flammable solid. Solid material in bulk form will not detonate or explode on impact nor can it be ignited by an instantaneous electrical spark. Self-heating begins in sealed fiber drums when heated to about 120°F. (49°C.) with momentary ignition and mild explosion occurring as the temperature reaches 140°F. (60°C.) Dry, solid AIBN can be ignited readily with an open flame or a continuous electrical arc. As long as it is provided with air, it burns brightly, though mildly, and completely. Suitable fire extinguishers are CO_2, dry powder or foam. Water can be used but because the solids float on water, other types of extinguishers are preferred. Scott "Air Pak" should be worn when fighting an AIBN fire. AIBN dispersions in air are explosive. They are extremely easy to ignite, and, in comparison with other organic dusts, develop more forceful decomposition at exceedingly rapid rates. Solutions of AIBN at concentrations used in polymerizations (1% or less) present no problem. More concentrated solutions (10% or higher) which are sometimes used to feed catalyst into a process can present a hazard if heated or exposed to hot surfaces.
	Report to First Aid.	Report to First Aid.	Report to First Aid.	Report to First Aid.	
		Call a specialist.	Call a physician.		

CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARDS AND DANGEROUS REACTIONS
IBL	Remove contaminated clothing and flush with copious quantities of water. Report to First Aid.	Flush with water for 15 minutes. Report to First Aid. Call a specialist.	Induce vomiting. Report to First Aid. Call a physician.	Sweet odor. Report to First Aid.	Flash point is 95°F. Autoignition temperature is 800°F. Moderate fire hazard when exposed to heat or flame. Burns quietly! To fight fire use foam, carbon dioxide, dry chemical or carbon tetrachloride.Combustible liquid. Moderate explosion hazard in the form of vapor when exposed to heat or flame. Lower explosive limit is 1.68%. Moderately dangerous disaster control; it emits highly-toxic fumes when heated.
TLE	Remove contaminated clothing. Report to First Aid.	Report to First Aid. Call a specialist.	Report to First Aid. Call a physician.	Threshold limit is 200 ppm. Odor similar to benzene. Remove patient from contaminated area. Artificial respiration should be started at once if breathing has stopped. Report to First Aid.	High fire hazard. Explosive limits are 1.27 to 6.75%. Flash point is 4°C. (40°F)(Closed Cup). Boiling point 110.6°C. (Commercial product: 109-111°C.)

CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARDS AND DANGEROUS REACTIONS
BTE	Remove contaminated clothing and wash affected area with warm water and soap. Report to First Aid.	Irritating. Wash with water for at least 10 minutes. Report to First Aid. Call a specialist.	Induce vomiting by inserting finger at the back of the patient's throat, or by having him drink warm salty water. When vomiting begins, place the patient face down with the head lower than the hips. Report to First Aid. Call a physician.	Threshold limit is 250 ppm. It has a characteristic ketone odor. No cumulative effect. Remove patient from contaminated area. Give artificial respiration. If oxygen apparatus is available, administer oxygen. Keep patient warm. Report to First Aid.	Flash point 22°F. Upper explosive limit 11.5%. Lower explosive limit 1.81%. Dangerous fire hazard when exposed to heat or flame; it can react with oxidizing materials. To fight fire: carbon dioxide, dry chemical or carbon tetrachloride. Moderate explosion hazard when exposed to flame. BTE is a low flash flammable liquid and its vapors form explosive mixtures with air over a fairly wide range of concentrations. BTE is also quite volatile and the vapor which is heavier than air may accumulate in low spots or travel along the ground and be ignited by sparks or other flames at locations remote from the handling site.
DOL	Remove contaminated clothing and flush affected area with copious quantities of water. Report to First Aid.	Flush with water for 15 minutes. Report to First Aid . Call a specialist.	 Report to First Aid. Call a physician.	Moderately toxic. Remove patient from contaminated area. Report to First Aid.	Flash point is 56° F. Flash point (open cup) is 35 °F. Dangerous fire hazard when exposed to heat or flame; can react vigorously with oxidizing materials. DOL burns violently and can form explosive vapor-air mixture. To fight fire: carbon dioxide, dry chemical or carbon tetrachloride. Dangerous disaster control hazard! Keep away from heat and open flame.

CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARDS AND DANGEROUS REACTIONS
DOX	Remove contaminated clothing. Wash with water, then soap and water.	Flush with water for 15 minutes.		Threshold limit is 100 ppm. Mild nonresidual odor. Remove patient from contaminated area.	High fire and explosive hazard. Flash point 54°F. (Closed Cup.) Explosive limits by volume in air, 2% to 22%; can form explosive mixture on distilling to dryness. When anhydrous, tends to form explosive peroxides in contact with air. To fight fire use carbon dioxide, dry chemical or carbon tetrachloride. Freezing point is 11.70°C. (53.6°F.) DOX is a volatile and flammable liquid. Vapors are highly flammable and form explosive mixtures with air. Keep away from sparks and open flame. Because of its unusual combination of properties - high flammability, high freezing point, and a tendency to form peroxides- DOX poses special handling and storage problems. Like other ethers, DOX is a relatively inert compound. Nevertheless, it does undergo a number of different reactions including peroxide formation, condensation with unsaturated compounds, ring cleavage, ring substitution and the formation of complexes.
	Report to First Aid.	Report to First Aid. Call a specialist.	Report to First Aid. Call a physician.	Report to First Aid.	

CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARDS AND DANGEROUS REACTIONS
DHB	Flush with copious quantities of water, then with soap and water.	Flush with copious quantities of water.		Faint, characteristic odor. Remove patient from contaminated area.	Flash point 261°F. (Closed Cup). Slight fire hazard when exposed to heat or flame. To fight fire use water, carbon dioxide, dry chemical or carbon tetrachloride. Dangerous disaster control; when heated, it emits highly-toxic fumes. It can react with oxidizing materials. It is volatile in steam and sublimes readily.
	Report to First Aid.	Report to First Aid. Call a specialist.	Report to First Aid. Call a physician.	Report to First Aid.	The use of diazomethane as an alkylation agent is not recommended, since it has been reported to react explosively with DHB. It reacts with acetylene under the influence of amine-type catalysts to yield resinous condensation products. Reaction in the presence of alkali catalysts appears to be uncontrollable.

CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhalation)	FIRE, EXPLOSION, DISASTER HAZARDS AND DANGEROUS REACTIONS
EC	Wash with water, then soap and water. Because of its rapid evaporation, it can produce frostbite . For frostbite, do not rub. Place in lukewarm water or wrap up and make warm. Give patient a warm drink. Exercise after thawing out. Report to First Aid.	Flush with water. Report to First Aid. Call a specialist.	Report to First Aid. Call a physician.	Threshold limit is 1000 ppm Ether-like odor. Remove patient from exposure, use artificial respiration if needed and obtain medical attention. Oxygen administration may be needed if exposure has been severe. Report to First Aid.	High fire and explosion hazard. Flash point (closed cup) - 58° F. (Open cup) - 45° F. Lower explosive limit 3.8% , upper explosive limit 15.4% by volume. To fight fire: carbon dioxide, dry chemical or carbon tetrachloride. Diaster control: Highly dangerous! Keep away from heat or open flame; forms phosgene on combustion, reacts with water or steam to produce toxic and corrosive fumes; can react vigorously with oxidizing materials.
Freon 12	No appreciable absorption by the skin. Freon 12 is a low boiling liquid (-21°F). If liquid comes in contact with the skin, it may cause freezing or frostbite. For frostbite, do not rub. Place in lukewarm water or wrap up and make warm. Give patient a warm drink. Exercise after thawing out. Report to First Aid.	Eye protection should be used when handling liquid. Exposure to liquid may cause freezing or serious damage. Exposure to vapors ordinarily has no effect. If some irritation develops washing with water is recommended. Report to First Aid.	Swallowing vapors is not usually harmful. Swallowing may cause freezing of tissue. Do not give emetic! Report to First Aid. Call a physician.	If exposed to high concentrations, remove to fresh air. Threshold limit for continuous exposure is 1000 ppm. Report to First Aid.	No fire or explosive hazard. May be decomposed to form toxic products, principally halogen acids when exposed to high temperatures, such as gas flames, electric resistance heaters or fires in general. Freon 12 melting point is -21.5° F.; boiling point is -29°C. Freon 12 is a dangerous disaster control hazard. When heated to decomposition, it emits highly-toxic fumes of phosgene and fluorides.

CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARDS AND DANGEROUS REACTIONS
Dowex Resin (50Wx8, 20-50 mesh Na form)	Wash with water. It is not absorbed through skin in toxic amounts. Report to First Aid.	Flush eyes with plenty of water. Call a specialist. Report to First Aid.	Very low in single dose oral toxicity. Physical nature precludes its ingestion; therefore, not a problem under anticipated industrial operations. Report to First Aid.	Physical nature precludes inhalation; therefore, not a problem. Report to First Aid.	Dowex (R) Resin presents no problem of flammability or explosiveness. There are no known dangerous reactions with other chemicals.
Betz 40P	Wash with soap and water. Report to First Aid.	Flush with clear water. Report to First Aid. Call a specialist.	Report to First Aid. Call a physician.	Remove patient from contaminated area. Report to First Aid.	--
AF-104 Betz 104	Same as Betz 40P	Same as Betz 40P	Same as Betz 40P	Same as Betz 40P	Combustible. Flash point (open cup) 130° F. Keep away from heat and open flame. Keep container closed when not in use.
Betz 107	Same as Betz 40P	Same as Betz 40P	Same as Betz 40P	Same as Betz 40P	--

HYGIENE, TOXICOLOGY, FIRE, EXPLOSION AND DISASTER HAZARD STUDY ON ORGANIC AREA CHEMICALS

CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARDS AND DANGEROUS REACTIONS
Mercury	Insoluble in water and organic solvents. However, it is recommended to wash affected areas thoroughly. Report to First Aid.	Insoluble in water and organic solvents. Report to First Aid. Call a specialist.	Report to First Aid. Call a Physician.	Recommended maximal atmospheric concentration (8 hours) 0.1 milligram per cubic meter of air. Remove patient from contaminated area. Report to First Aid.	No fire or explosion hazard under ordinary conditions of use and handling. Dangerous disaster control; when heated it emits highly toxic fumes.

HYGIENE, TOXICOLOGY, FIRE, EXPLOSION AND DISASTER HAZARD STUDY ON ORGANIC AREA CHEMICALS

CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARDS AND DANGEROUS REACTIONS
Monochloroacetylene	Wash with copious quantities of water, then soap and water. Report to First Aid.	Flush with clear water. Report to First Aid. Call a Specialist.	Report to First Aid. Call a Physician.	Colorless gas with a nauseating odor irritating to the respiratory tract. Remove patient from contaminated area. Report to First Aid.	Explosive, highly toxic gas with a boiling point of -31°C. It is spontaneously flammable in air. Dangerous disaster control; shock will explode it; when heated to decomposition, it emits highly toxic fumes of phosgene; can react vigorously with oxidizing materials. It forms an explosive yellowish-red salt with ammoniacal cuprous solution. Aqueous solutions in contact with air display luminescence, and the presence of ozone can be detected.
Dichloroacetylene	Wash with copious quantities of water, then soap and water. Report to First Aid.	Flush with clear water. Report to First Aid.	Report to First Aid.	It is an oil with a disagreeable sweetish odor. Remove patient from contaminated area. Report to First Aid.	It is explosive and spontaneously flammable in air, burning to release phosgene. It melts at -65°C. and boils at 32° C. (760 mm). Severe explosive hazard when shocked or exposed to heat. Highly dangerous disaster control; shock and heat will explode it. When heated to decomposition or on contact with acid or acid fumes, it emits highly toxic fumes of chlorides; can react vigorously with oxidizing materials.

HYGIENE, TOXICOLOGY, FIRE, EXPLOSION AND DISASTER HAZARD STUDY ON ORGANIC AREA CHEMICALS

CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARDS AND DANGEROUS REACTIONS
Fish Oil	Wash with copious quantities of water, then soap and water. Report to First Aid.	Flush eye with an abundance of water. Report to First Aid. Call a Specialist.	Report to First Aid. Call a Physician.	Remove patient from contaminated area. Report to First Aid.	It is used in a fire extinguishing foam.
NRE	Remove contaminated clothing. Wash affected areas with soap and water. Report to First Aid.	Flush with copious quantities of water for 15 minutes. Report to First Aid.	Report to First Aid.	Threshold limit 100 ppm. Remove from contaminated area. Administer artificial respiration if breathing has stopped. Report to First Aid.	Flash point (open cup) is 110°F. NRE should be protected from all possible sources of adiabatic compression. Moderate fire and explosive hazard when shocked or exposed to heat or flame. Dangerous disaster hazard; shock or heat will explode it; on decomposition it emits highly toxic fumes of oxides of nitrogen; can react with oxidizing materials. To fight fire: carbon dioxide, dry chemical or carbon tetrachloride. Do not expose NRE to dry caustic. Do not allow solutions of NRE and bases to become dry. Certain mixtures of NRE and amines are sensitive. Some terniary mixtures of NRE, amines, and heavy metal oxides can be very hazardous.

HYGIENE, TOXICOLOGY, FIRE, EXPLOSION AND DISASTER HAZARD STUDY ON ORGANIC AREA CHEMICALS

CHEMICAL	SKIN ABSORPTION	EYE	SWALLOWING (Ingestion)	BREATHING (Inhallation)	FIRE, EXPLOSION, DISASTER HAZARDS AND DANGEROUS REACTIONS
HQMME	Remove contaminated clothing. Brush off chemical immediately. Wash with water. Slightly soluble in water. HQMME is not a skin irritant in small quantities, Report to First Aid.	Call a specialist. Flush with copious quantities of water. HQMME is moderately irritating in diluted and undiluted form. Report to First Aid.	Slightly toxic upon ingestion. Call a physician. Report to First Aid.	No threshold limit proposed, and it appears that it is unnecessary because of low degree of toxicity. Caramel and phenol odors. Remove patient from contaminated area. Give artificial respiration, if necessary. Report to First Aid.	Slight fire hazard when exposed to heat or flame; can react with oxidizing materials. Flash point (open cup) is 270° F. Fire point (open cup) is 275° F.