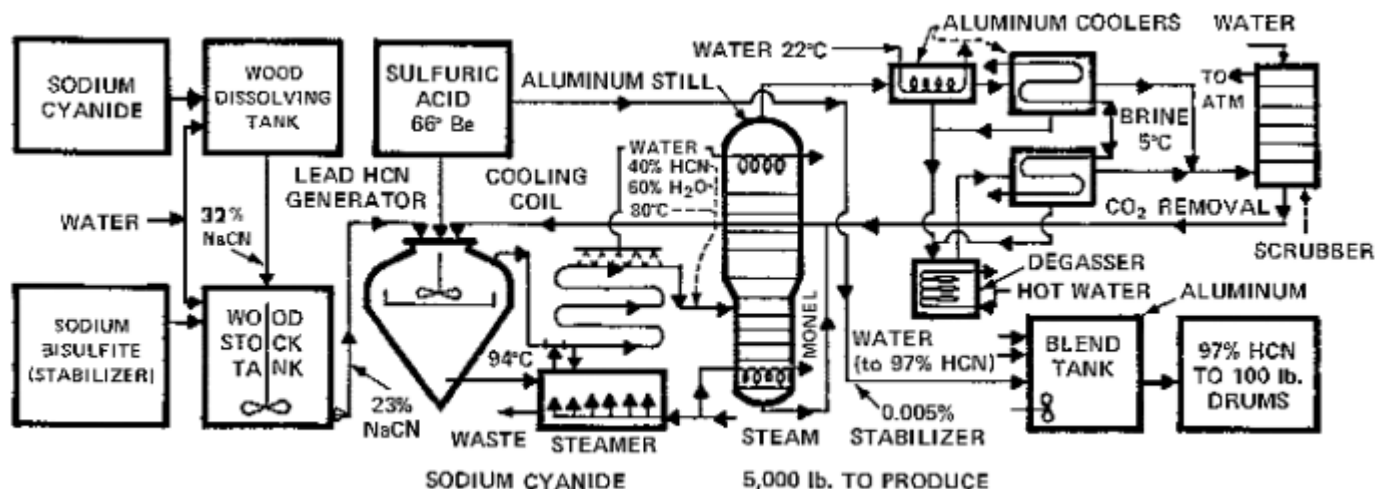


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Industry: <b>Chemicals and Allied Products</b>	Sub-Group: <b>Pesticides and Insecticides</b>
SIC: <b>2879</b>	NAICS: <b>325320</b>


**PROCESS DESCRIPTION:** Pesticides and insecticides control plant and animal pests or insects by contact, ingestion or inhalation of liquid, solid or gaseous chemical. The chemicals may include chlorinated and phosphated organic compounds, sulfuric acid, sulfur or hundreds of others. The basic materials are received by rail or truck and stored for formulation and manufacturing. The succeeding process will depend on the product and whether it is to be in powdered or liquid form, but basically, the materials are weighed or measured, mixed and processed in agitators, stills, condensers, separators, hoppers, tanks and piping. The end products are packaged, labeled and shipped by rail or truck.


#### PROCESS FLOW:



#### Hazards Analysis

Major Hazards			Other Hazards		
Location	Item	Hazard	Location	Item	Hazard
Throughout	Chemicals	Contact with, inhalation and ingestion of harmful dust, vapors or liquids causing burns, dermatitis, respiratory damage or other organ damage	Warehouse	Dockboards	Not secured at loading and unloading platforms
	Mechanical power transmission	Amputations and mangled limbs from contact with gears, shafts, pulleys, belts, chains and sprockets		Falling objects	Insecure storage and stacking

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	Barrels, bags, carboys and other containers  Work and storage platforms and ladders	Manual materials handling causing back injuries and hernias  Falls, trips and falling objects			
			Production	Poor housekeeping  Electrical equipment  Acids and caustics  Fire protection	Slips and falls from wet floors and spilled material  Shock from ungrounded equipment and exposed live parts  Body and eye chemical  Burns from a lack of fire protection equipment
<b>Key OSHNC Standards</b>					
<b>Reference</b>	<b>29 CFR 1910 — General Industry Standards</b>				
Subpart D	Walking and working surfaces				
Subpart E	Means of egress				
Subpart I	Personal protective equipment				
Subpart O	Machinery and machine guarding				
Subpart S	Electrical				
1910.94	Ventilation				
1910.106	Flammable and combustible liquids handling and storage				
1910.119	Process safety management				
1910.120	Hazardous Waste Operations and Emergency Response				
1910.146	Permit required confined space entry				
1910.147	Control of hazardous energy (lockout/tagout)				
1910.151	Eyewash and Emergency Showers				
1910.1000	Air contaminants				
1910.1200	Hazard Communication				

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<b>Inspection Analysis</b>		
<p>Chemicals, both dry and liquid, are received from the suppliers in a variety of containers. Inspections shall cover the receiving docks and material handling apparatus. The manufacturing area is the prime area for ruptures and leaks of processing equipment as well as for eye injuries. Industrial hygienists will investigate various toxic effects on the body and its internal functions from dust, gas and chemical inhalation, and ingestion and absorption through the skin. A thorough inspection for emergency shower and eye fountains, respirators, goggles, face shields, hoods, rubber gloves, clothing, local exhaust ventilation and first aid equipment must be made. Good personal hygiene including showers and clean clothing is required, as well as pre-employment and periodic physical examinations. The mixing machines as well as other power driven equipment must be checked for unguarded power transmissions and unprotected points of operation. All walking and working surfaces shall be kept dry and free from tripping and other hazards. All electrical apparatus must be checked for grounds, exposed live parts and, if in a Class I hazardous location, for approval for this location. The shipping dock must be inspected. Review chemical processes and quantities for applicability of Process Safety Management. Review plant emergency response procedures for applicability of 1910.120.</p> <p>Interview employees and supervisors to insure they have an effective knowledge of the chemical hazards and all protective measures. Discuss emergency procedures to insure a good understanding. Have safety shower and eyewash station tested.</p>		
<b>Other Pertinent Comments:</b>		