THE NONFRIGID SIDE OF CALARP

W-A1

March 26, 2025

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AGENDA

- California Accidental Release Program (CalARP) Overview
- Industries Subject to CalARP

OBJECTIVES

- There is more to CalARP than Anhydrous Ammonia
- Introduction to other CalARP facilities

CALARP OVERVIEW

- The purpose: To prevent accidental releases of Regulated Substances (RS), and to minimize the damage if releases do occur

CALARP OVERVIEW

- Facilities which **handle**, **manufacture**, **use**, or **store** any RS above threshold quantities (TQ).
  - Risk Management Plan (RMP) required

RS: Any substance, unless otherwise indicated, listed in Section 5130.6
TQ: Quantity specified for a RS pursuant to Section 5130.6

Chemical Name	CAS Number	Table 1 TQs in (lbs)	Table 2[2] TQs in (lbs)	Table 3 TQs in (lbs)
Acetaldehyde	75-07-0		10,000	
Acetone cyanohydrin [3]	75-86-5			1,000
Acetone thiosemicarbazide	1752-30-3			1,000/10,000 [4]
Acetylene [Ethyne]	74-86-2		10,000	
Acrolein [2-Propenal]	107-02-8	5,000		500
Acrylamide	79-06-1			1,000/10,000 [4]
Acrylonitrile [2-Propenenitrile]	107-13-1	20,000		10,000
Acrylyl chloride [2-Propenoyl chloride]	814-68-6	5,000		100
Aldicarb	116-06-3			100/10,000 [4]
Aldrin	309-00-2			500/10,000 [4]
Allyl alcohol [2-Propen-l-ol]	107-18-6	15,000		1,000
Allylamine [2-Propen-l-amine]	107-11-9	10,000		500
Aluminum phosphide [5]	20859-73-8			500
Aminopterin	54-62-6			500/10,000 [4]
Amiton oxalate	3734-97-2			100/10,000 [4]
Ammonia (conc 1% or greater) [6]	7664-41-7			500
Ammonia (anhydrous) [6]	7664-41-7	10,000		500
Ammonia (conc 20% or greater) [6]	7664-41-7	20,000		
Ammonium hydroxide (ammonia conc 1% or greater) [6]	1336-21-6			500
Ammonium hydroxide (ammonia conc 20% or greater) [6]	1336-21-6	20,000		

CALARP OVERVIEW

- CalARP Program Levels
- RMP Requirements

COMPARISON OF PROGRAM REQUIREMENTS			
Program 1	**Program 2**	**Program 3**	**Program 4**
Executive Summary 5073.3	Executive Summary 5073.3	Executive Summary 5073.3	Executive Summary 5073.3
Worst-case release analysis 5080.3	Worst-case release analysis 5080.3	Worst-case release analysis 5080.3	Worst-case release analysis 5080.3
	Alternative release analysis 5080.4	Alternative release analysis 5080.4	Alternative release analysis 5080.4
5-year accident history 5080.9	5-year accident history 5080.9	5-year accident history 5080.9	5-year accident history 5080.9
	Document management system 5050.6	Document management system 5050.6	Document management system 5110.16
Prevention Program			
Certify no additional steps needed	Safety Information 5090.1	Process Safety Information 5100.1	In addition to all Program Level 3 prevention elements, the following are required for Program Level 4
	Hazard Review 5090.2	Process Hazard Analysis 5100.2	
	Operating Procedures 5090.3	Operating Procedures 5100.3	Safeguard Protection Analysis—for Potential Major Incident 5110.5
	Training 5090.4	Training 5100.4	Hierarchy of Hazard Control Analysis 5110.16
	Maintenance 5090.5	Mechanical Integrity 5100.5	Process Safety Culture Assessment 5110.17
	Compliance Audit 5090.6	Compliance Audit 5100.8	Human Factors Program 5110.18
	Incident Investigation 5090.7	Incident Investigation 5100.9	Accidental Release Prevention Program Management System 5110.19
		Management of Change 5100.6	Access to documents and Information 5110.20
		Pre-Startup Review 5100.7	
		Employee Participation 5100.10	
		Hot Work Permit 5100.11	
		Contractors 5100.12	
Emergency Response Program			
Coordinate with local emergency responders	Develop a plan and program (if applicable) and coordinate with local emergency responders	Develop a plan and program(if applicable) and coordinate with local emergency responders	Develop a plan and program (if applicable) and coordinate with local emergency responders

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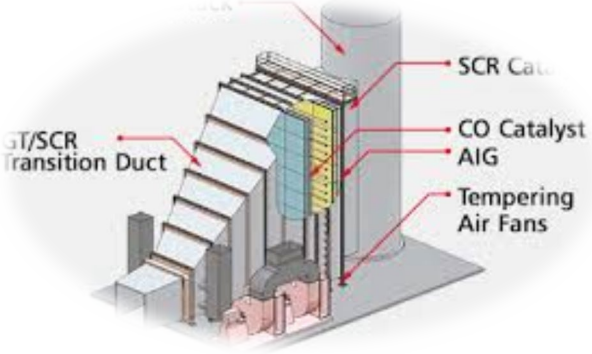
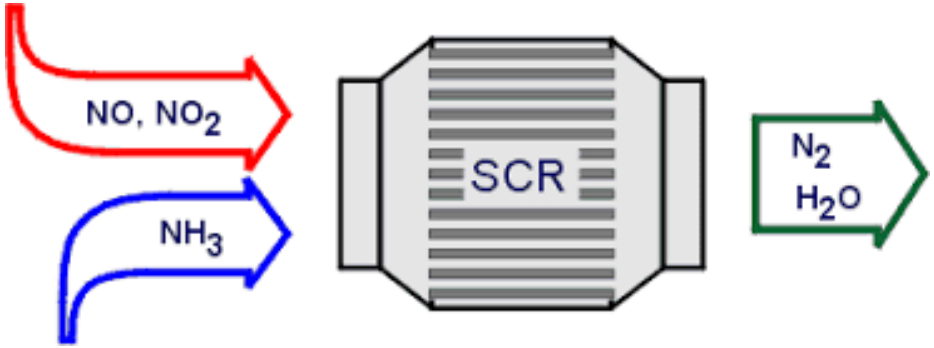
ALVINNN!!!

OTHER CALARP INDUSTRIES



SELECTIVE CATALYTIC REDUCTION



SELECTIVE CATALYTIC REDUCTION

- Chemicals of Concern:
  - Ammonia[5] (CAS # 7664-41-7)
  - Concentrations vary:
    - 19.5 % - most common - **WHY?**

- [5] - *…The listing of ammonia includes anhydrous and aqueous forms of ammonia pursuant to Section 25532(i)(2).*

SELECTIVE CATALYTIC REDUCTION

- **Ammonia**
  - CalARP TQ = 500 lbs (any concentration)
  - Federal RMP = 10,000 lbs (< 20% by wt)
  - OSHA PSM = 10,000 lbs (< 44% by wt)

SELECTIVE CATALYTIC REDUCTION

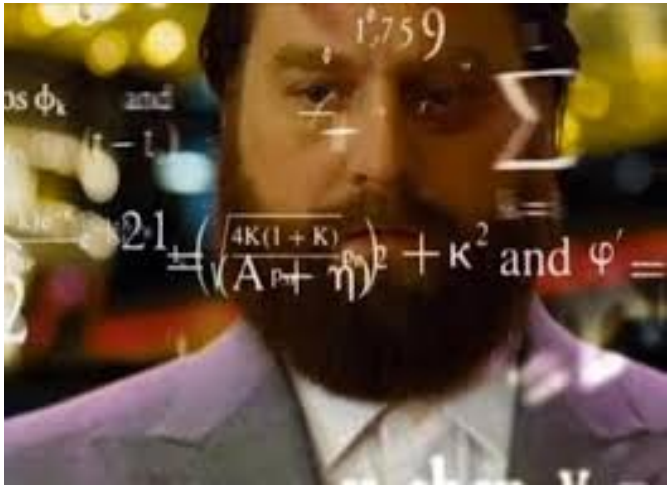
- Aqueous Ammonia = $Ammonia_{anhydrous} + H_2O$
  - **19.5%** NH_3 +**80.5%** H_2O

    = 100% solution

  Does 500 gallons = 500 pounds?

  - Wt of NH_3 = 5.15 lb/gal

  - Wt of H_2O = 8.34 lb/gal



ex - 19.5% Aqua Ammonia in 12k gal Tank

5.15 lbs/gal X 19.5% = 1.00 lbs/gal NH_3

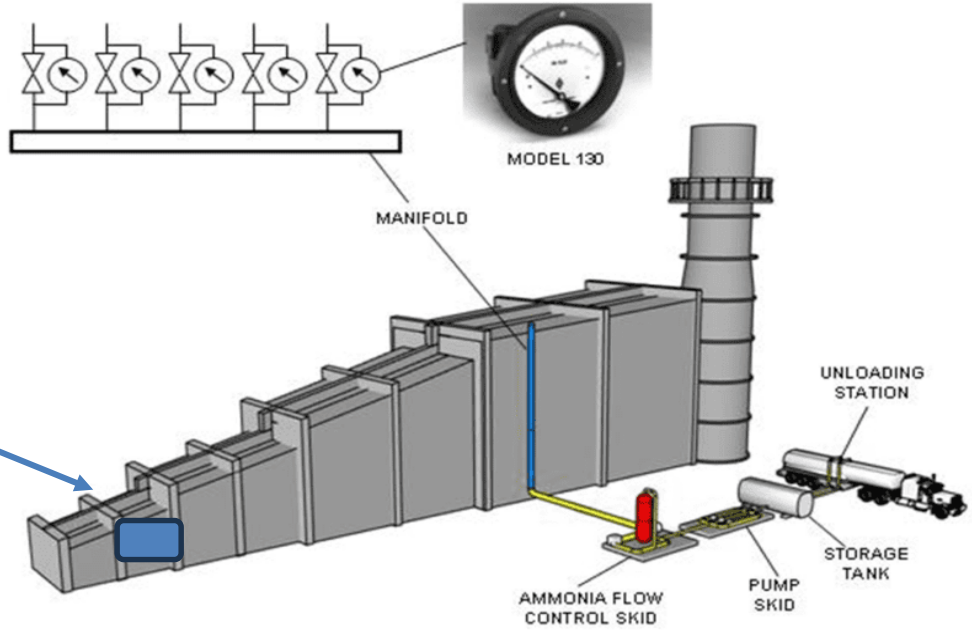
8.34 lbs/gal X 80.5% = 6.71 lbs/gal H_2O

→ 7.71 lbs/gal

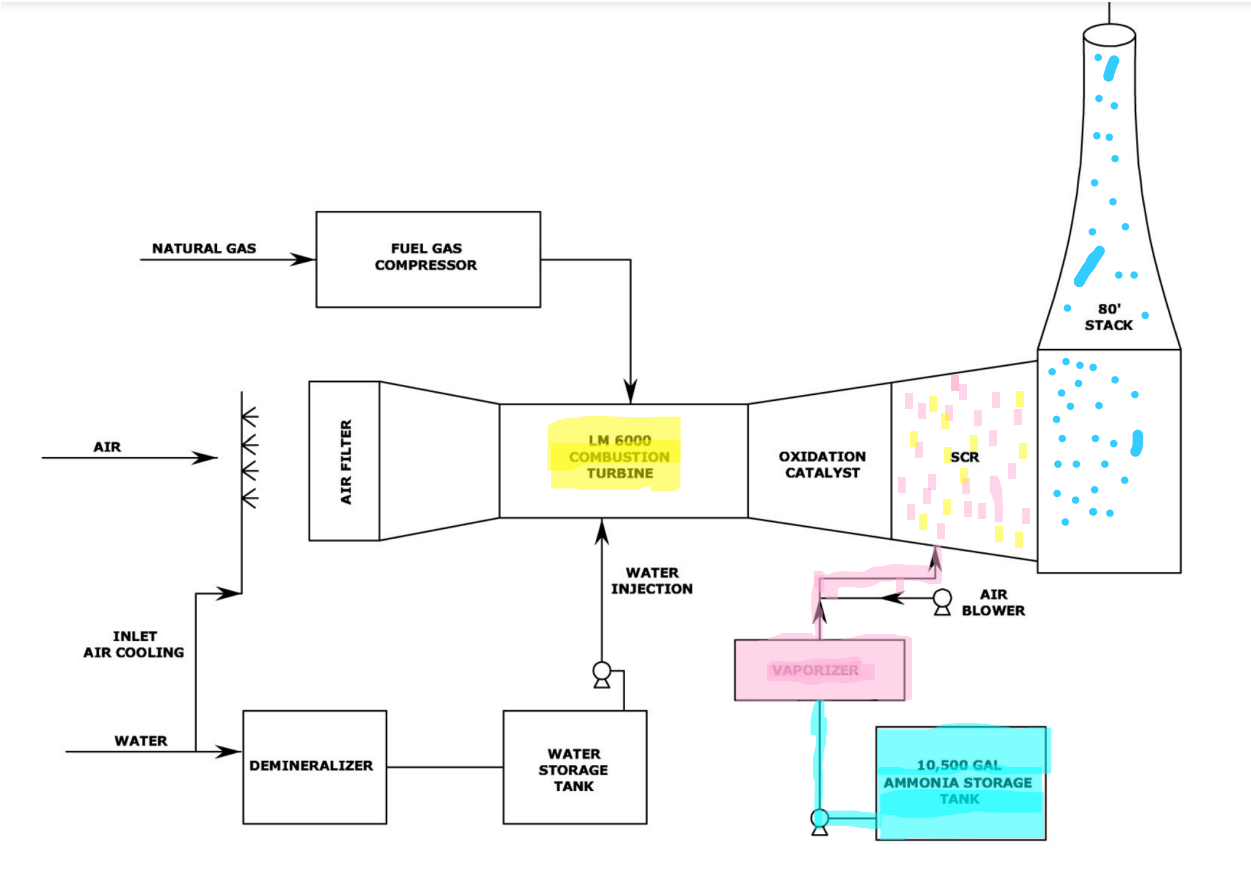
7.71 lbs/gal X 12,000 gal = 92,520 lbs 19.5% Aqua Ammonia

92,520 lbs X19.5% = **18,041 lbs NH_3**

SELECTIVE CATALYTIC REDUCTION



SELECTIVE CATALYTIC REDUCTION SYSTEM FOR SIMPLE CYCLE GAS TURBINES


NATURAL GAS
FUEL GAS COMPRESSOR
80' STACK
AIR
AIR FILTER
LM 6000 COMBUSTION TURBINE
OXIDATION CATALYST
SCR
WATER INJECTION
AIR BLOWER
INLET AIR COOLING
VAPORIZER
WATER
DEMINERALIZER
WATER STORAGE TANK
10,500 GAL AMMONIA STORAGE TANK

SELECTIVE CATALYTIC REDUCTION

- Equipment - Tanks

SELECTIVE CATALYTIC REDUCTION

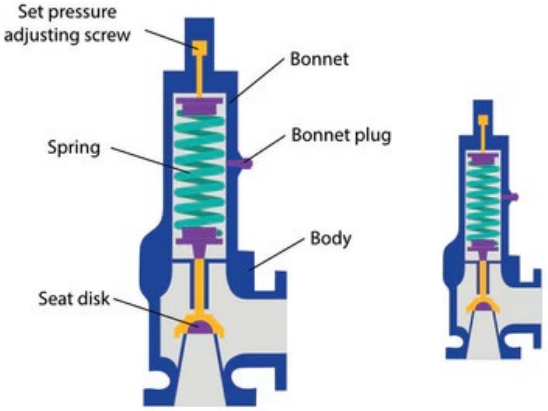
- Ammonia sensors

SELECTIVE CATALYTIC REDUCTION

- Shut off's/Audio-Visual

SELECTIVE CATALYTIC REDUCTION

- Pressure Relief



CONVENTIONAL SPRING LOADED PRESSURE RELIEF VALVE

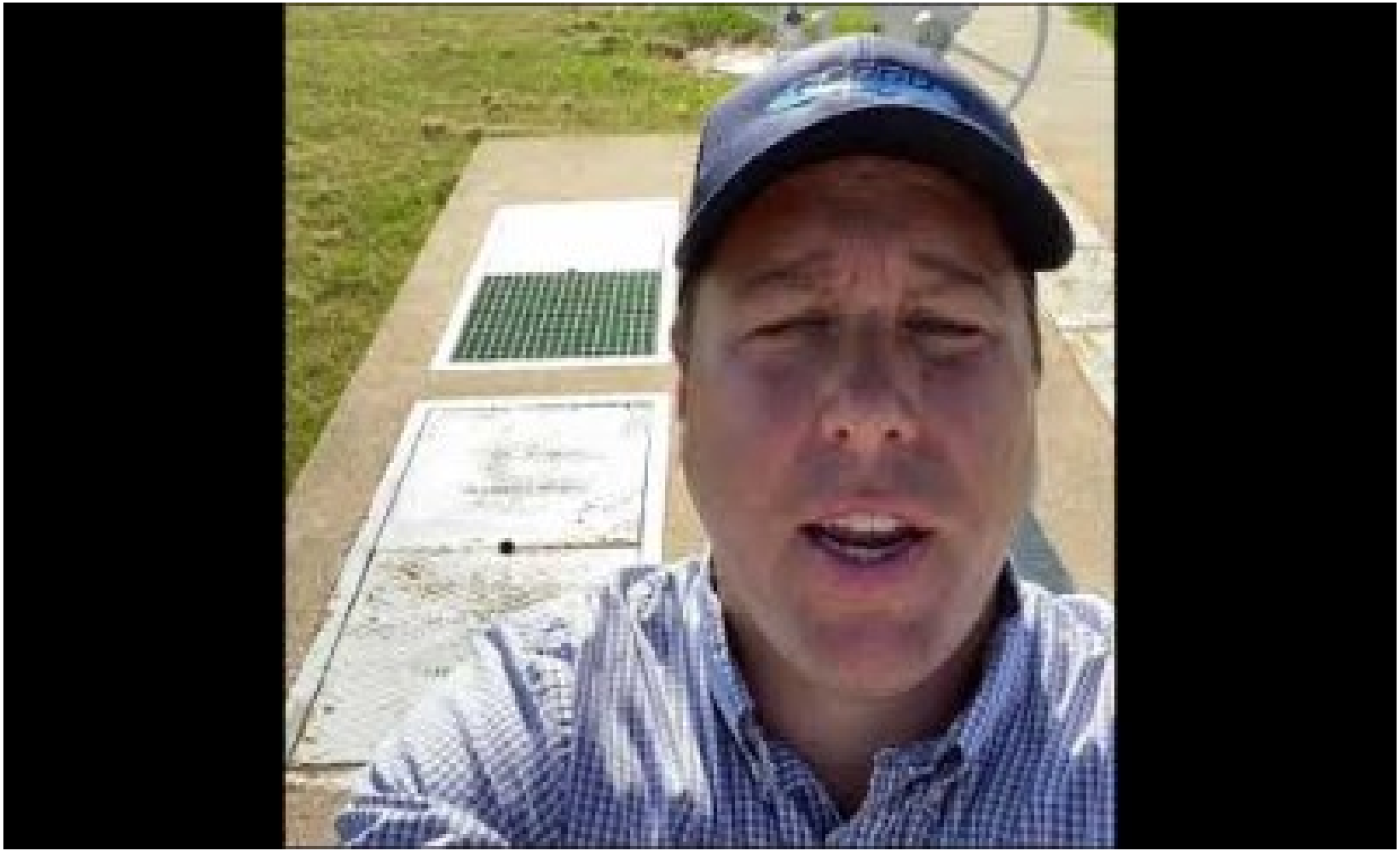
SELECTIVE CATALYTIC REDUCTION

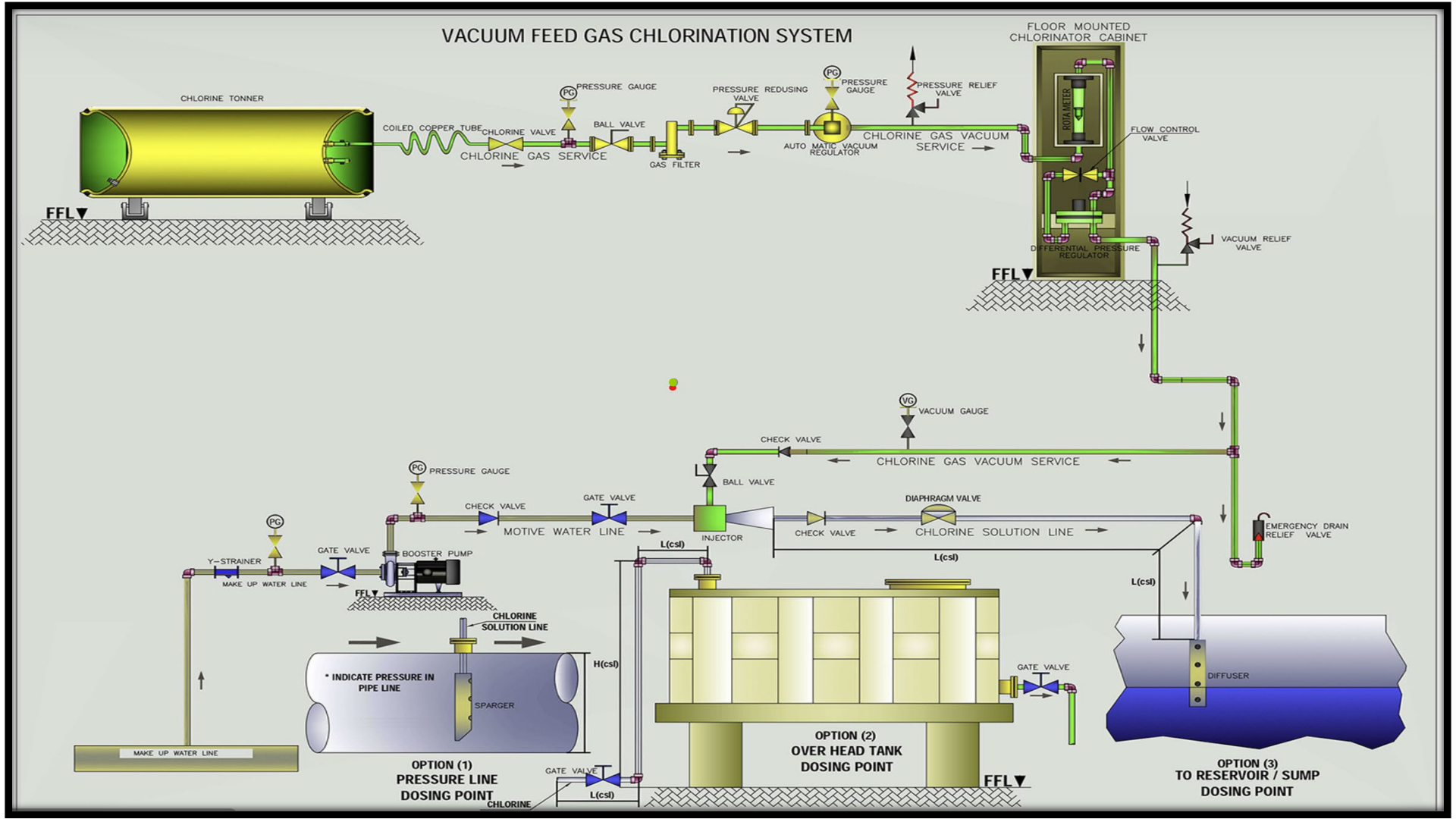
- Other Safety Equipment

WATER TREATMENT/DISINFECTION

WATER TREATMENT/DISINFECTION

- Regulated Substances:
  - **Chlorine** (CAS # 7782-50-5)
    - TQ = 100 lbs
  - **Ammonia** (CAS # 7664-41-7)
    - Used to create chloramines




VACUUM FEED GAS CHLORINATION SYSTEM
FLOOR MOUNTED
CHLORINATOR CABINET
CHLORINE TONNER
COILED COPPER TUBE
CHLORINE VALVE
CHLORINE GAS SERVICE
PRESSURE GAUGE
BALL VALVE
GAS FILTER
PRESSURE REDUSING VALVE
AUTO MATIC VACUUM REGULATOR
PRESSURE GAUGE
PRESSURE RELIEF VALVE
CHLORINE GAS VACUUM SERVICE
ROTA METER
FLOW CONTROL VALVE
DIFFERENTIAL PRESSURE REGULATOR
VACUUM RELIEF VALVE
FFL
VACUUM GAUGE
CHECK VALVE
CHLORINE GAS VACUUM SERVICE
BALL VALVE
PRESSURE GAUGE
CHECK VALVE
GATE VALVE
MOTIVE WATER LINE
INJECTOR
DIAPHRAGM VALVE
CHECK VALVE
CHLORINE SOLUTION LINE
EMERGENCY DRAIN RELIEF VALVE
Y-STRAINER
GATE VALVE
BOOSTER PUMP
MAKE UP WATER LINE
L(csl)
L(csl)
L(csl)
CHLORINE SOLUTION LINE
* INDICATE PRESSURE IN PIPE LINE
SPARGER
H(csl)
MAKE UP WATER LINE
OPTION (1)
PRESSURE LINE
DOSING POINT
GATE VALVE
CHLORINE
L(csl)
OPTION (2)
OVER HEAD TANK
DOSING POINT
GATE VALVE
DIFFUSER
OPTION (3)
TO RESERVOIR / SUMP
DOSING POINT

CHLORINE CONTAINMENT

CONTAINER TYPES

CHLORINE CONTAINMENT

CONTAINER TYPES

CONTAINER TYPES

CONTAINER TYPES

EQUIPMENT-safety system

Valve Actuator Systems

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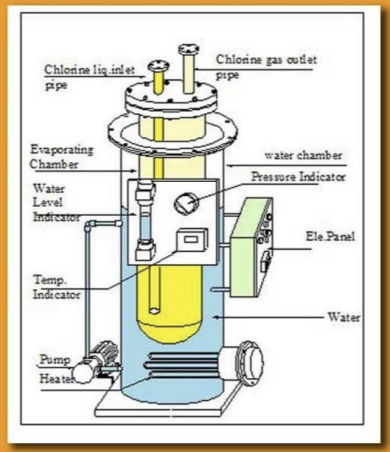
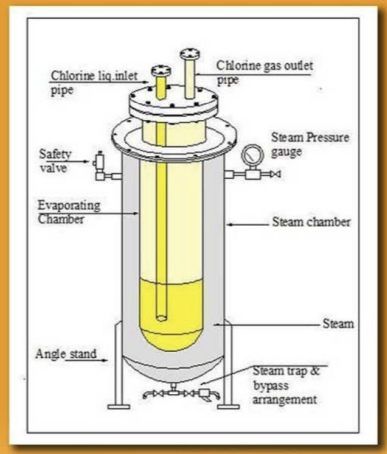
EQUIPMENT-Evaporators

Chlorine Evaporator

Electric heated Evaporator



Steam heated Evaporator



EQUIPMENT-Chlorinator

EQUIPMENT-Ejectors

Safety Systems – Chlorine Sensors

METAL FINISHING-Plating Shops

METAL FINISHING – Common Chemicals

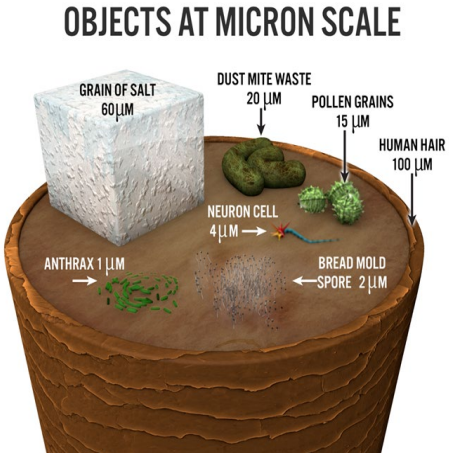
TABLE 3 chemicals
Program Level 1

- Sodium Cyanide (CAS #143-33-9)
  - TQ – 100 lbs [4]
- Potassium Cyanide (CAS #151-50-8)
  - TQ – 100 lbs [4]
- Cadmium Oxide (CAS #1306-19-0)
  - TQ – 100/10,000 lbs [3]

METAL FINISHING – Common Chemicals

Table 3 Footnotes:

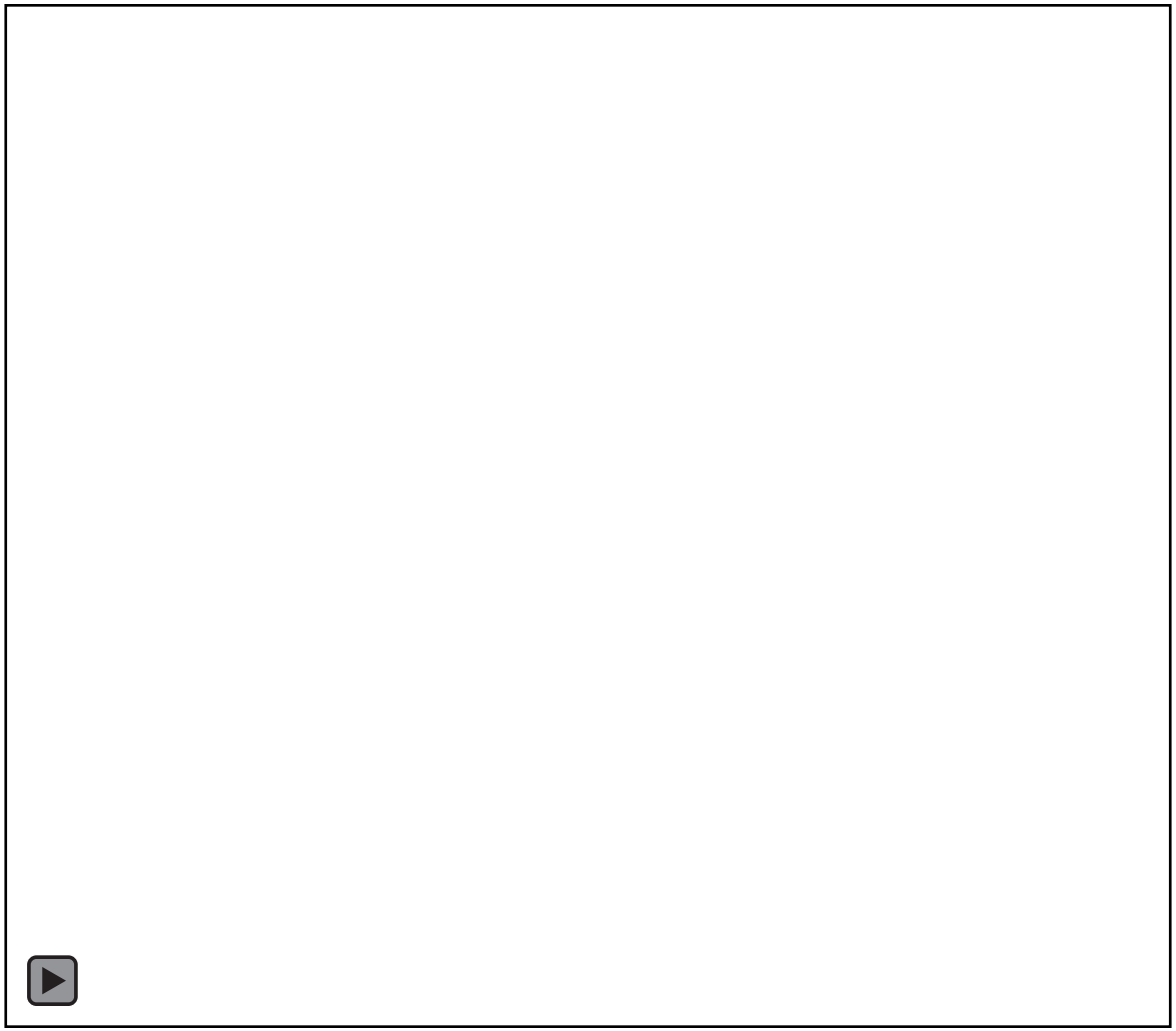
[3] *These extremely hazardous substances are solids. The* ***lesser quantity*** *listed applies only if in powdered form and with a particle size of less than 100 microns; or if handled in solution or in molten form; or the substance has an NFPA rating for reactivity of 2, 3, or 4.* ***Otherwise, a 10,000-pound threshold applies****. The exemption … handled at partial pressures below 10 mm Hg does not apply to these substances.*



Powder

Flakes

Briquets



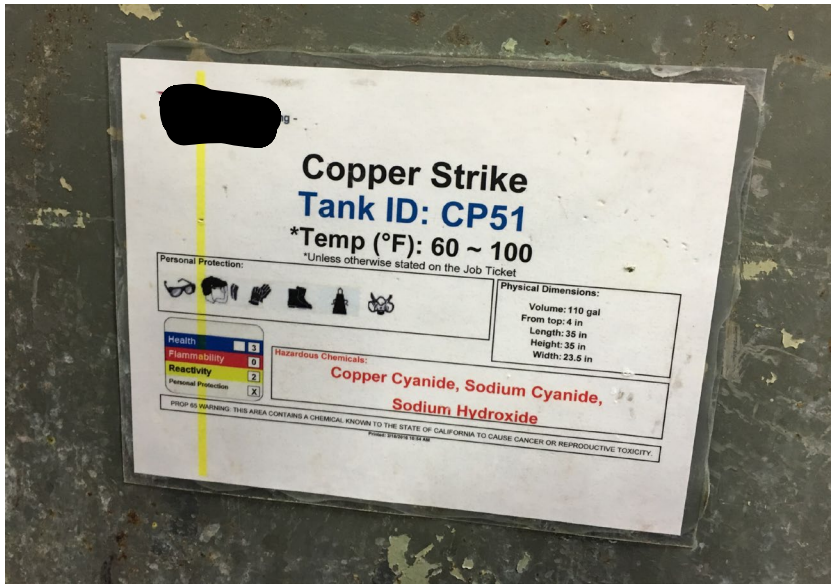
METAL FINISHING – Common Chemicals

Table 4 Footnotes:

[4] *These extremely hazardous substances are **reactive solids**. The exemption … are handled at partial pressures below 10 mm Hg does not apply to these substances.*

Name	Sodium cyanide
Appearance	Color less and odor less
Chemical Formula	NaCN
CAS No.	143-33-9
Chemical Structure	NFPA
Na—C≡N	

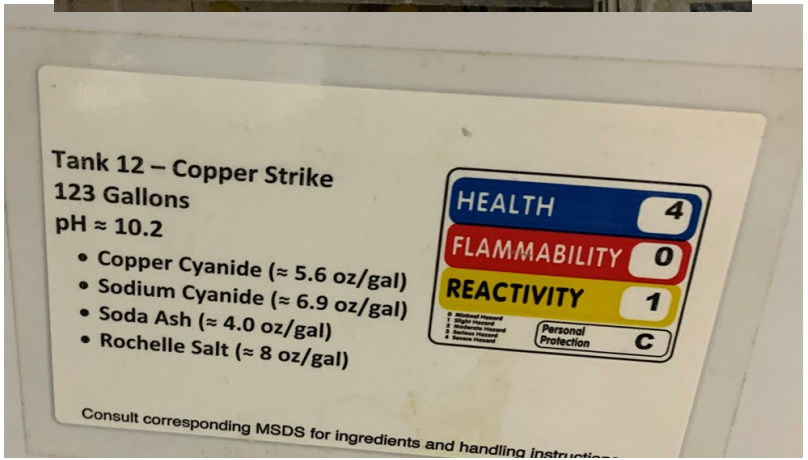
METAL FINISHING



METAL FINISHING

500 gal X 8 oz/gal X 1 lb/16 oz=
250 lbs NaCN

123 gal X 6.9 oz/gal X 1 lb/16 oz=
53 lbs NaCN



METAL FINISHING

Table 6-1
Evaluation of Maximum Quantity of Listed Substances On-Site

Process	Listed Substance	Largest Vessel/ Container	Maximum Quantity Stored (lbs)	Subject to Federal RMP	Subject to CalARP [a]
Storage (CdO powder)	Cadmium oxide	55 pounds	83	No	No
Storage (KCN briquettes)	Potassium cyanide	110 pounds	330	No	Yes
Storage (NaCN briquettes)	Sodium cyanide	110 pounds	770	No	Yes
Open process tanks (B-4, B-6, B-7, B-8)	Cadmium oxide	181 gallons	136	No	Yes
Open process tanks (AG-12, AG-13, AG-14, AG-15)	Potassium cyanide	181 gallons	748	No	Yes
Open process tanks (B-4, B-6, B-7, B-8, B-12, B-13, CJ-2, CJ-3, CJ-6, CJ-7)	Sodium cyanide	162 gallons	1,238	No	Yes

[a] Threshold quantity for cadmium oxide, potassium cyanide, and sodium cyanide is 100 lbs.

Threshold quantity for cadmium oxide is 100 lbs for powdered forms in a particle size of less than 100 microns. Otherwise, 10,000 lbs threshold applies.

Table 6-2
Summary of Open Process Tanks Containing Regulated Substances

Tank Number	Tank Name	Tank Volume (gal)	Regulated Substance	Regulated Substance Quantity (lbs)
AG-12	Silver Flash #1	181	Potassium cyanide	170
AG-13	Silver Flash #2	181	Potassium cyanide	170
AG-14	Silver Plate #1	181	Potassium cyanide	204
AG-15	Silver Plate #2	181	Potassium cyanide	204
B-4	Cadmium Plating	181	Cadmium oxide	34
			Sodium cyanide	119
B-6	Cadmium Plating	181	Cadmium oxide	34
			Sodium cyanide	63
B-7	Cadmium Plating	181	Cadmium oxide	34
			Sodium cyanide	63
B-8	Cadmium Plating	181	Cadmium oxide	34
			Sodium cyanide	119
B-12	Copper Plate	181	Sodium cyanide	113
B-13	Copper Plate	181	Sodium cyanide	113
CJ-2	Cadmium/Copper Strip	162	Sodium cyanide	162
CJ-3	Cadmium/Copper Strip	162	Sodium cyanide	162
CJ-6	Silver Strip	162	Sodium cyanide	162
CJ-7	Silver Strip	162	Sodium cyanide	162

METAL FINISHING

METAL FINISHING

Safe storage

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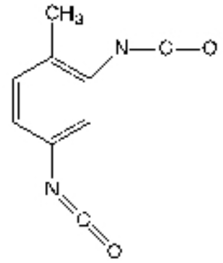
METAL FINISHING

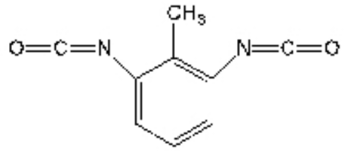
Containment

TOLUENE DIISOCYANATE - TDI

TDI is used as a chemical intermediate to produce polyurethane foams, elastomers, coatings, sealants, adhesives, etc.

TOLUENE DIISOCYANATE - TDI





2-4 TDI[8]
CalARP TQ: 500 lbs
Fed TQ: 10,000 lbs
CAS # 584-84-9

2-6 TDI[8]
CalARP TQ: 100 lbs
Fed TQ: 10,000 lbs
CAS # 91-08-7

[8] ***- The 10 mmhg exemption does not apply***

Toluene-2,4-diisocyanate	Formula: $CH_3C_6H_3(NCO)_2$	CAS#: 584-84-9	RTECS#: CZ6300000	IDLH: Ca [2.5 ppm]
Conversion: 1 ppm = 7.13 mg/m^3	**DOT:** 2078 156			

Synonyms/Trade Names: TDI; 2,4-TDI; 2,4-Toluene diisocyanate

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: C 0.02 ppm (0.14 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2535, 5521, 5522, 5525
OSHA 18, 33, 42

Physical Description: Colorless to pale-yellow solid or liquid (above 71°F) with a sharp, pungent odor.

Chemical & Physical Properties:
MW: 174.2
BP: 484°F
Sol: Insoluble
FI.P: 260°F
IP: ?
Sp.Gr: 1.22
VP(77°F): 0.01 mmHg
MLT: 71°F
UEL: 9.5%
LEL: 0.9%
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, water, acids, bases & amines (may cause foam & spatter); alcohols [**Note:** Reacts slowly with water to form carbon dioxide and polyureas.]

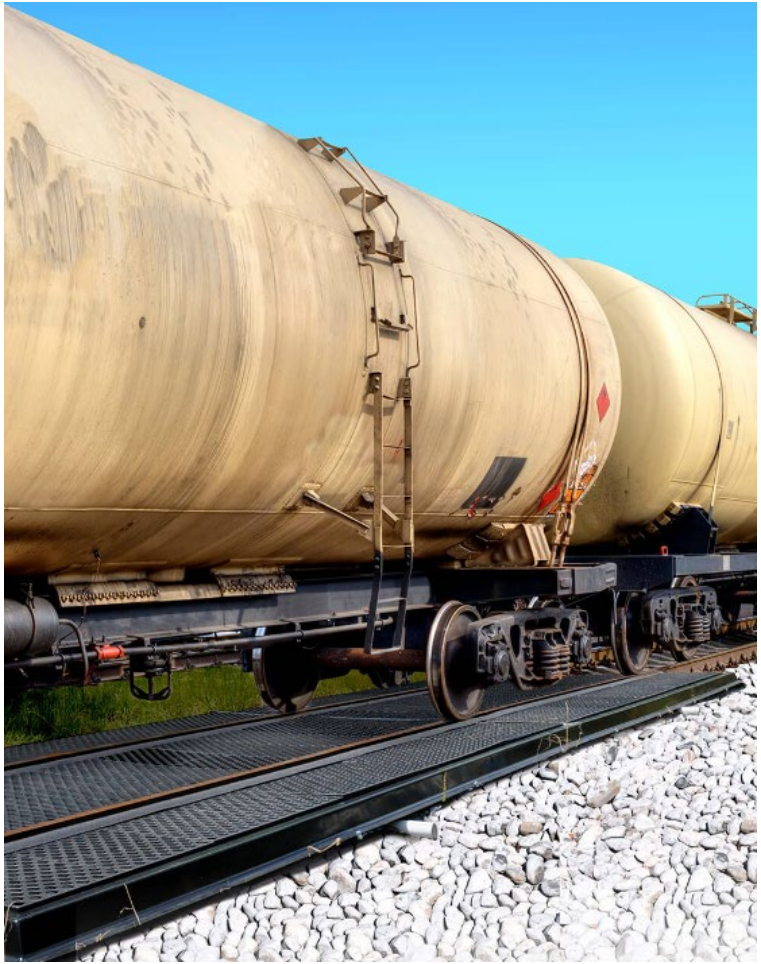
Diamond	Hazard	Value	Description
	Health	3	Can cause serious or permanent injury.
	Flammability	1	Must be preheated before ignition can occur.
	Instability	2	Readily undergoes violent chemical changes at elevated temperatures and pressures.

TDI

- Large Volumes

TDI

- Spill Containment



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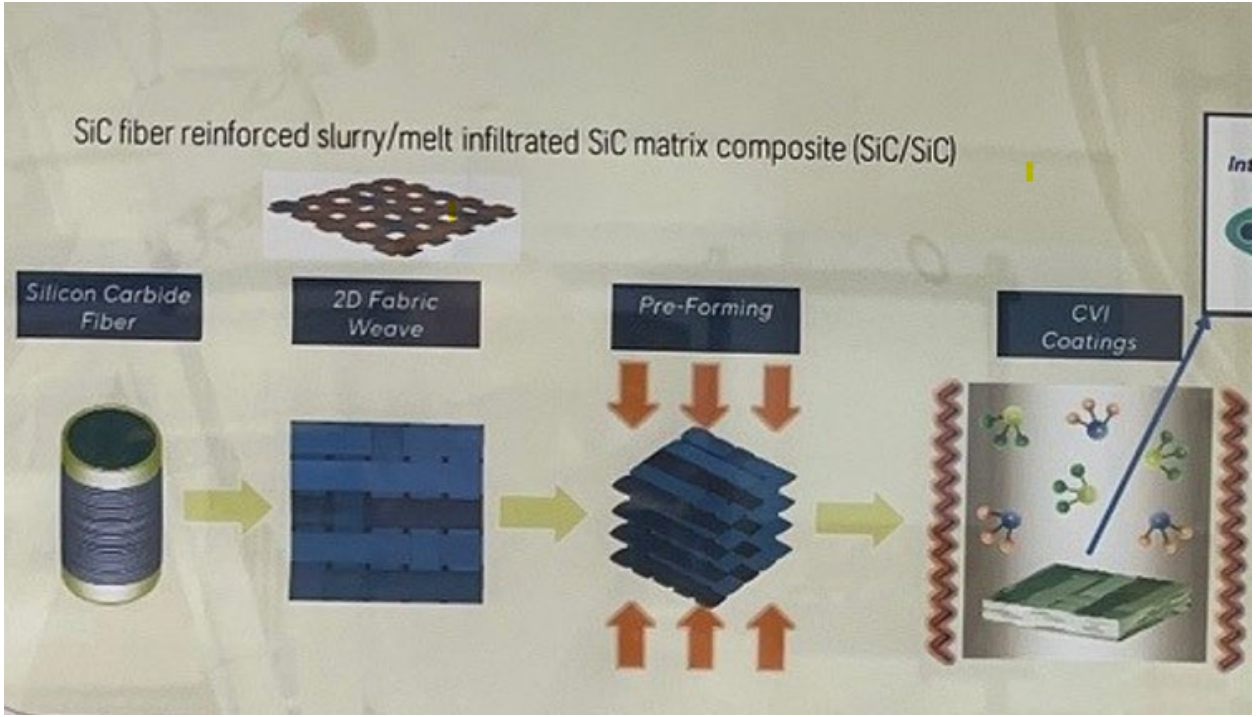
TDI-Foam Production

Chemical Vapor Infiltration (CVI)

- Methyltrichlorosilane (MTS) CAS # 556-64-9
  - TQ – 500 pounds
- Boron Trichloride CAS# 10294-34-5
  - TQ – 500 pounds
- Anhydrous Ammonia
  - TQ – 500 pounds

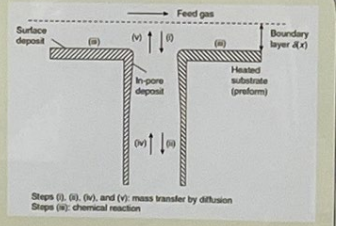
PRE-FORMING


SiC fiber reinforced slurry/melt infiltrated SiC matrix composite (SiC/SiC)
Silicon Carbide Fiber
2D Fabric Weave
Pre-Forming
CVI Coatings

Chemical Vapor Infiltration (CVI)

Chemical Vapor Infiltration (CVI)

Reactive gases at elevated temperature and low pressure are flown through a fibrous preform to deposit a coating.



3 Coatings applied:

1. **Fiber Interphase** – allows fiber to release from matrix to provide composite behavior
2. **SiC Matrix** – high temperature, bulk densification and rigidization
3. **CVI-SMI Interface Layer (CSL)** – protects material during future processing

Weighing and inspection after each coating with ~ 3-5 weeks leadtime to process through CVI

Production Scaling of CVI Furnace:

Key element of industrialization is the ramp-up is design, make and verification of production CVI furnaces and scaling from smaller DEV furnaces

Chemical Vapor Infiltration (CVI)

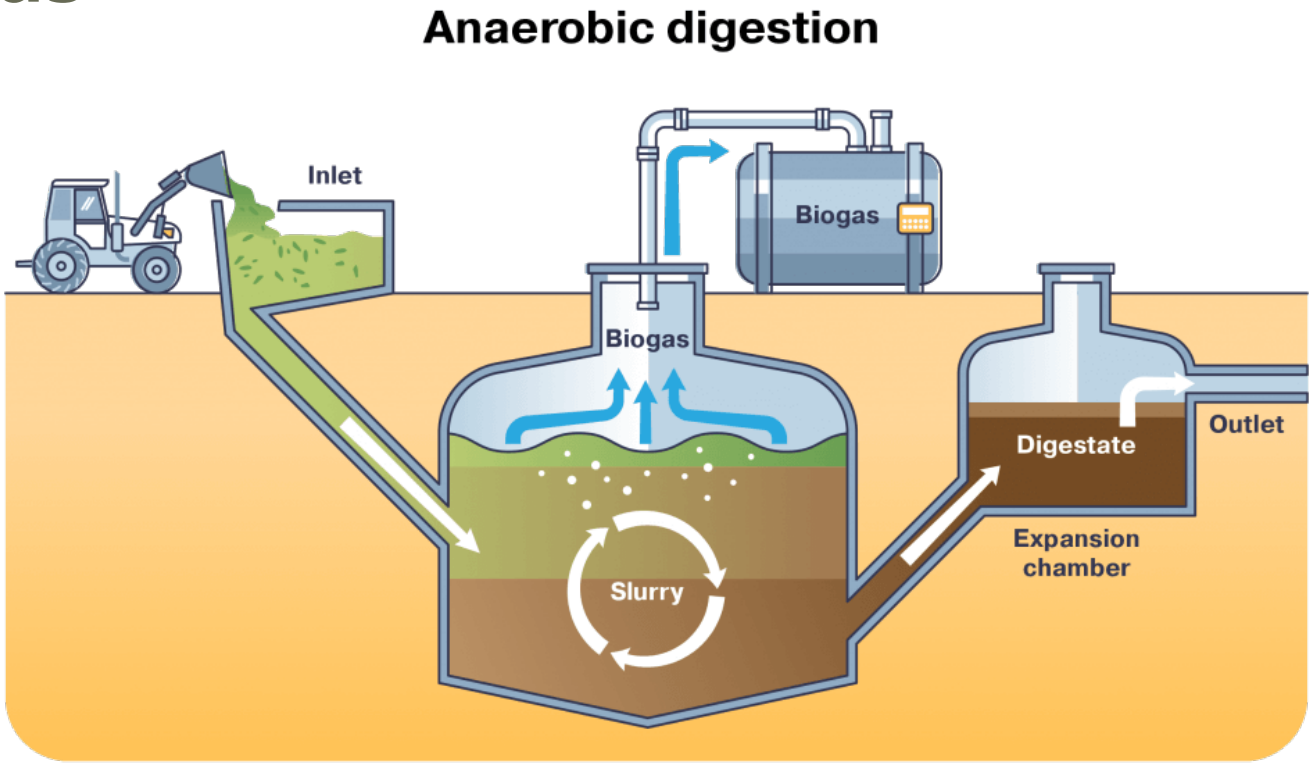
Chemical Vapor Infiltration (CVI)

CHEMICAL STORAGE

- Multiple chemicals/RSs
- Potentially multiple covered processes.
- RAGAGEP stems from fire code
  - Must have good safety program
  - ER Plan

CHEMICAL STORAGE

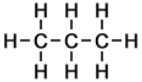
Biogas


Anaerobic digestion
Inlet
Biogas
Biogas
Digestate
Outlet
Expansion chamber
Slurry

NATURAL GAS LIQUIDS (NGL'S)

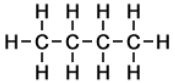
NATURAL GAS LIQUIDS (NGL'S)

Full Displayed Formula of **Propane**:



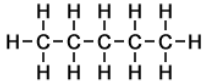
Skeletal Formula of **Propane**:

Full Displayed Formula of **Butane**:



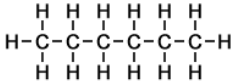
Skeletal Formula of **Butane**:

Full Displayed Formula of **Pentane**:



Skeletal Formula of **Pentane**:

Full Displayed Formula of **Hexane**:



Skeletal Formula of **Hexane**:

NATURAL GAS LIQUIDS (NGL'S)

- NO RS called NGLs??
- NGLs = Propane (74-98-6)
  Butane (106-97-8)
  Pentane (109-66-0)
- Table 2 = 10,000 pounds

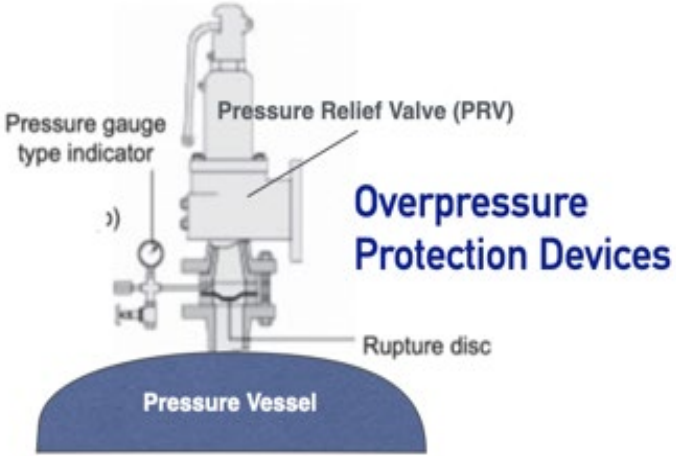
Table 2 - Flammable

Isobutane [Propane, 2-methyl]
Isopentane [Butane, 2-methyl-]
Isoprene [1,3-Butadinene, 2-methyl-]
Isopropylamine [2-Propanamine]
Isopropyl chloride [Propane, 2-chloro-]
Methane
Methylamine [Methanamine]
3-Methyl-1-butene
2-Methyl-1-butene
Methyl ether [Methane, oxybis-]
Methyl formate [Formic acid, methyl ester]
2-Methylpropene [1-Propene, 2-methyl-]
1,3-Pentadinene
Pentane
1-Pentene
2-Pentene, (E)-
2-Pentene, (Z)-
Propadiene [1,2-Propadiene]
Propane
Propylene [1-Propene]
Propyne [1-Propyne]

NATURAL GAS LIQUIDS (NGL'S)

NATURAL GAS LIQUIDS (NGL'S)

- PRV Maintenance
- Vessel level switches/gauges
  - Clean from gunk
- Daily visual checks



NATURAL GAS LIQUIDS (NGL'S)

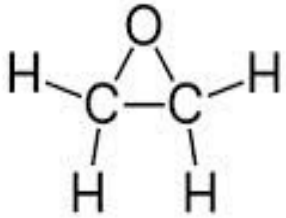
- Compressor Maintenance
  - Oil change
  - Oil level check
  - Clean oil float

NATURAL GAS LIQUIDS (NGL'S)

- AQMD inspects pipe to ensure no weeping in all pipe breaks/valves

STERILIZATION – Ethylene Oxide

- Ethylene Oxide = ETO = EO
  - CalARP TQ: 1,000 lbs
  - Fed TQ: 10,000 lbs
  - CAS # 75-21-8



ETO - Containers

Medical Sterilization – Ethylene Oxide

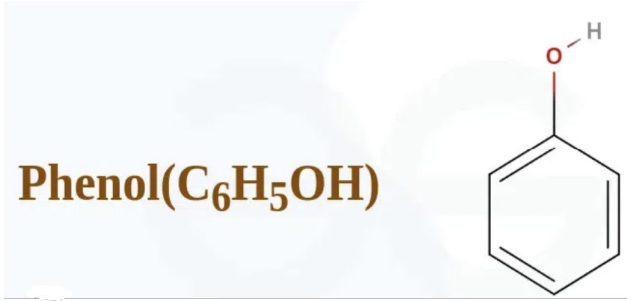
INK/DEVELOPER – HYDROQUINONE[6]

- CalARP TQ: 500 / 10,000[3] lbs
- Fed TQ: 10,000 lbs
- CAS # 123-31-9

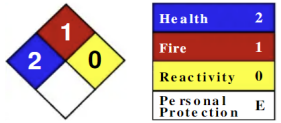
- [6] - *Hydroquinone is exempt in crystalline form.*

INK/DEVELOPER - HYDROQUINONE

- Throughout film history, the supply of pure **PHENOLS** has come from byproducts of the petrochemical industry.



Hydroquinone



Material Safety Data Sheet
Hydroquinone MSDS

Section 1: Chemical Product and Company Identification

Product Name: Hydroquinone

Catalog Codes: SLH1351, SLH2197

CAS#: 123-31-9

RTECS: MX3500000

TSCA: TSCA 8(b) inventory: Hydroquinone

CI#: Not applicable.

Synonym: 1,4-Benzenediol

Chemical Name: 1,4-Dihydroxybenzene

Chemical Formula: C6H4(OH)2

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Hydroquinone	123-31-9	100

Toxicological Data on Ingredients: Hydroquinone: ORAL (LD50): Acute: 320 mg/kg [Rat.]. DERMAL (LD50): Acute: 5970 mg/kg [Mammal].

Section 3: Hazards Identification

Potential Acute Health Effects: Hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, the nervous system, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

INK/DEVELOPER - HYDROQUINONE

Developing Agent	Common Film Developer	Developer Effect
	Common film developer	**Developer type**
Hydroquinone	DD-X, HC-110 (Ilfotec HC), D-76 (ID-11), Ilfosol 3 (Ilford Simplicity), Dektol, D-96, DF-96 Monobath, TMax developer, PQ Universal developer, Microphen, Bromophen	Full speed developing agent.

SKINCARE - HYDROQUINONE

Semi conductor manufacturing

Arsine gas

Semi conductor manufacturing

Phosphine (PH_3)

PH_3 is a toxic and flammable gas. It can be used for solar cells, polysilicon, N-type doping process of GaAs diodes, as well as CVD (Chemical Vapor Deposition) process, epitaxy, and ion implantation or diffusion.

General Information

Product Name	Phosphine (PH_3)	CAS Number	7803-51-2
Grade	99.9997%	Formula Weight	34.0

Grade-99.9997 vol.% min

Gas Phase Impurity	N_2	H_2O	O_2	CO_2	CO	Methane
Maximum Concentration	<1 ppmv	<1 ppmv	<0.1 ppmv	<0.1 ppmv	<0.1 ppmv	<0.1 ppmv

Standard Package

Cylinder Size	47 L Aluminum Cylinder	Valve Connection	CGA 350/DISS632
Fill Weight (lbs)	33	Cylinder Dimensions (in)	9.3*54.1
Fill Weight (kgs)	15	Cylinder Dimensions (cm)	23.5*137.5

Technical Information

Major Hazards	Toxic and flammable	Odor	Fishy odor and pungent odor
Flammable Limits	LFL=1.6% (est.), UFL=98%	Boiling Point @ 1atm	-87.7°C
Exposure Limit	TLV-twa=0.3 ppm	Specific Volume @ 21°C	0.709 l/g

List of List

Where's Wally?

https://en.wikipedia.org/wiki/Where%27s_Wally%3F

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	EPCRA, CERCLA, CAA 112(r), and CWA 311 Consolidated List of List for Specific Chemicals with CAS Numbers													
2	THE FOLLOWING LIST SHOULD BE USED FOR REFERENCE ONLY. COMPLIANCE INFORMATION CAN BE FOUND IN 40 CFR PART 302 AND TABLE 302.4													
3	NAME	CAS Number/ 313 Category Codes	Comptox	CAA 112(r)(7) TQ	CERCLA HS RQ	CWA 311(j)(5) HS TQ	EPCRA 302 EHS TPQ	EPCRA 304 EHS RQ	EPCRA 313 TF	RCRA Cod	CAS Sort Value	NAMEIND EX	5189 App	
348	Chlorendic acid	115-28-6	DTXSID2020268						313		115286	CHLORENDIC ACID		
349	Chlorfenvinfos	470-90-6	DTXSID7034250				500	500			470906	CHLORFENVINFOS		
350	Chlorimuron-ethyl	90982-32-4	DTXSID0023955						313		90982324	CHLORIMURON ETHYL		
351	Chlorinated Benzenes	N.A.	DTXSID201034315		&						0	CHLORINATED BENZENES		
352	Chlorinated Ethanes	N.A.	DTXSID3028479		&						0	CHLORINATED ETHANES		
353	Chlorinated Naphthalene	N.A.	DTXSID60103485		&						0	CHLORINATED NAPHTHALEN		
354	Chlorinated Phenols	N084	DTXSID201336737		&				313		1	CHLORINATED PHENOLS		
355	Chlorine [5]	7782-50-5	DTXSID1020273	2,500	10	10,000	100	10	313		7782505	CHLORINE	1500	
356	Chlorine dioxide	10049-04-4	DTXSID5023958	1,000					313		10049044	CHLORINE	1000	
357	Chlorine monoxide	7791-21-1	DTXSID50893909	10,000							7791211	CHLORINEMONOXIDE		
358	Chlorine oxide	7791-21-1	DTXSID50893909	10,000							7791211	CHLORINEOXIDE		
359	Chlorine oxide (ClO2)	10049-04-4	DTXSID5023958	1,000					X		10049044	CHLORINEOXIDE (CLO2)		
360	Chlorine Pentrafluoride	13637-63-3									13637633	Chlorine Pentrafluoride	1000	

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27th California Unified Program Annual Training Conference
March 24-27, 2025

Any Questions?