

REACTIVE CHEMICALS REVIEW

1989

PROCESS RISK MANAGEMENT

DO A 022182
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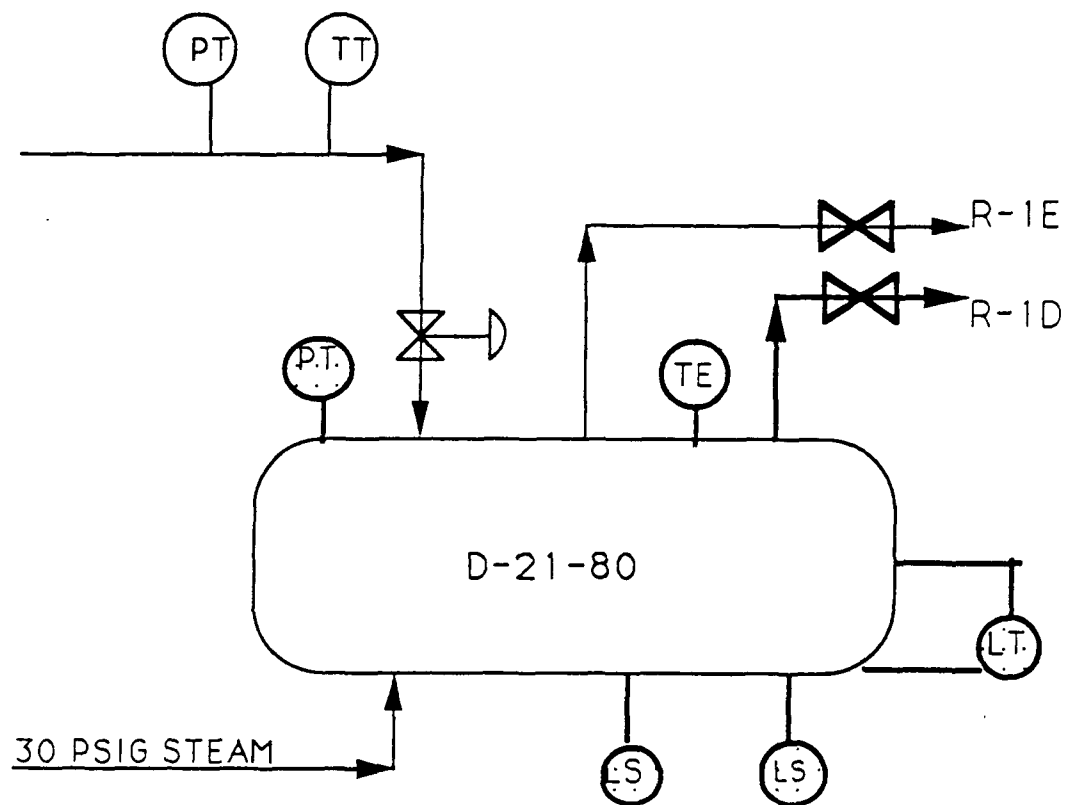
REACTIVE CHEMICAL REVIEW

EDC I PROCESS

LOUISIANA DIVISION

DECEMBER 14, 1989

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D-21-80 CHLORINE KNOCK OUT DRUM

D-21-80

REACTIVE POTENTIAL

SOLUTION

REACTIVITY OF CHLORINE

A. GREASE

ONLY FOUROLUBE IS USED. ON
EQUIPMENT TO BE PUT INTO
CHLORINE SERVICE

TITANIUM

NO TITANIUM FITTING IN THE
PLANT

B. LIQUID CL₂ TO THE REACTORS

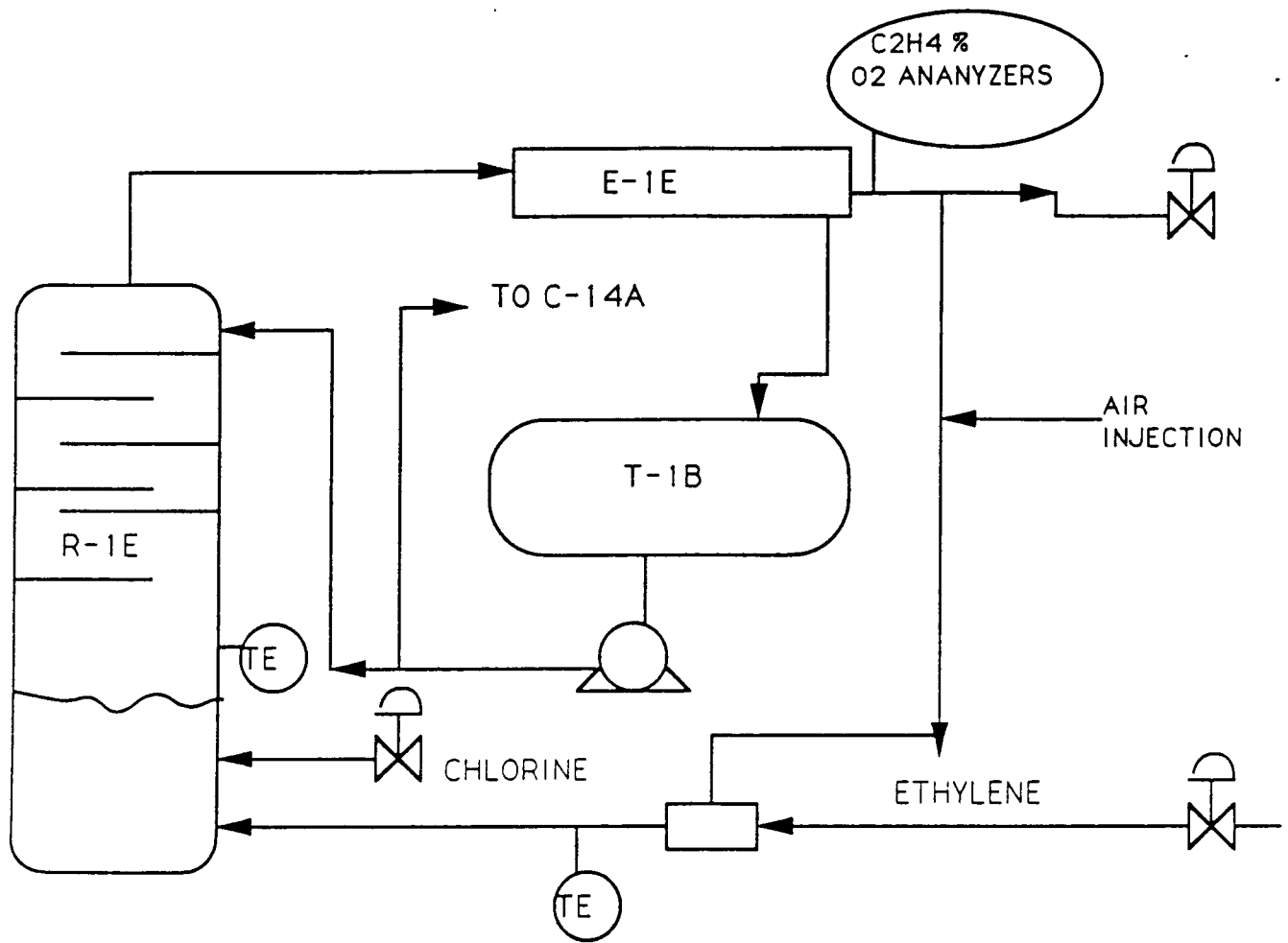
TEMPERATURE
MONITORED IN CL₂
HEADER

DEW POINT CALC BASED
ON PURITY TEMPERATURE AND
PRESSURE

LEVEL ALARM AND REDUNDANT
DEVICES ON THE DRUM

VESSEL IS STEAM JACKETED
AND INSULATED

CHLORINE TRANSFER LINE IS
INSULATED AND STEAM TRACED



R-1E SYSTEM

R-1E REACTOR

REACTIVE POTENTIAL

1. LIQUID CHLORINE

SOLUTION

**ALL CHLORINE LINES
ARE STEAM TRACED**

**CHLORINE LIQUEFACTION
TEMPERATURE IS
CALCULATED FROM
PRESSURE AT R-1E METER
RUN**

**LOW CHLORINE
TEMPERATURE ALARM**

**REACTOR SHUTDOWN AT
2.5 C
OF LIQUEFACTION**

2. VAPOR PHASE REACTION

**DUAL LIQUID LEVEL
TRANSMITTERS**

LOW LEVEL ALARMS

**TEMPERATURE MONITORS
IN VAPOR SPACE ABOVE
BED**

**LOW LEVEL, HIGH
TEMPERATURE TRIP
SCHEME**

**VENT TEMPERATURE
MONITOR**

**3. MIXING CL₂ AND C₂H₄
VENT STREAMS**

**TEMPERATURE IS MON-
ITORED AND ALARMED
DOWN STREAM OF THE JET**

4. REACTOR BALANCE

**ETHYLENE TO CHLORINE
RATIO IS MAINTAINED
BY THE MOD V**

**REDUNDANT EXCESS C₂H₄
ANALYZERS ON THE VENT**

5. LOSS OF PLANT AIR

**CL₂ AND C₂H₄ EBV'S FAIL
CLOSED ON LOSS OF AIR**

6. LIQUID C₂H₄

**CONSTANT MONITORING OF
ETHYLENE TEMPERATURE
AND CALCULATION OF
THE DEW POINT**

7. HIGH TEMPERATURE

**HIGH TEMPERATURE
ALARMS IN THE VAPOR
SPACE**

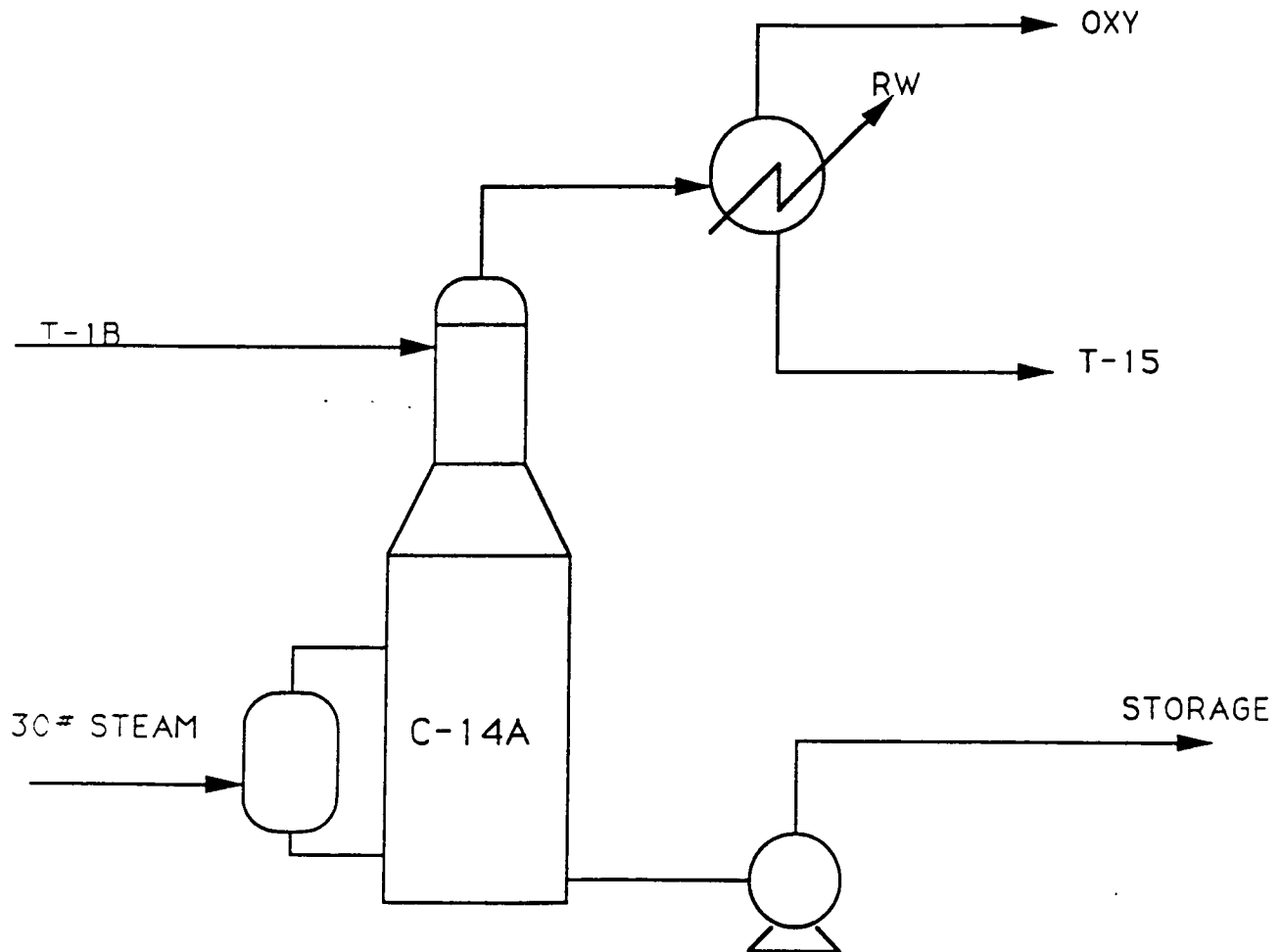
8. LOSS OF POWER

**CL₂ AND C₂H₄ EBV'S WILL
FAIL CLOSED**

9. AIR ADDITION SYSTEM

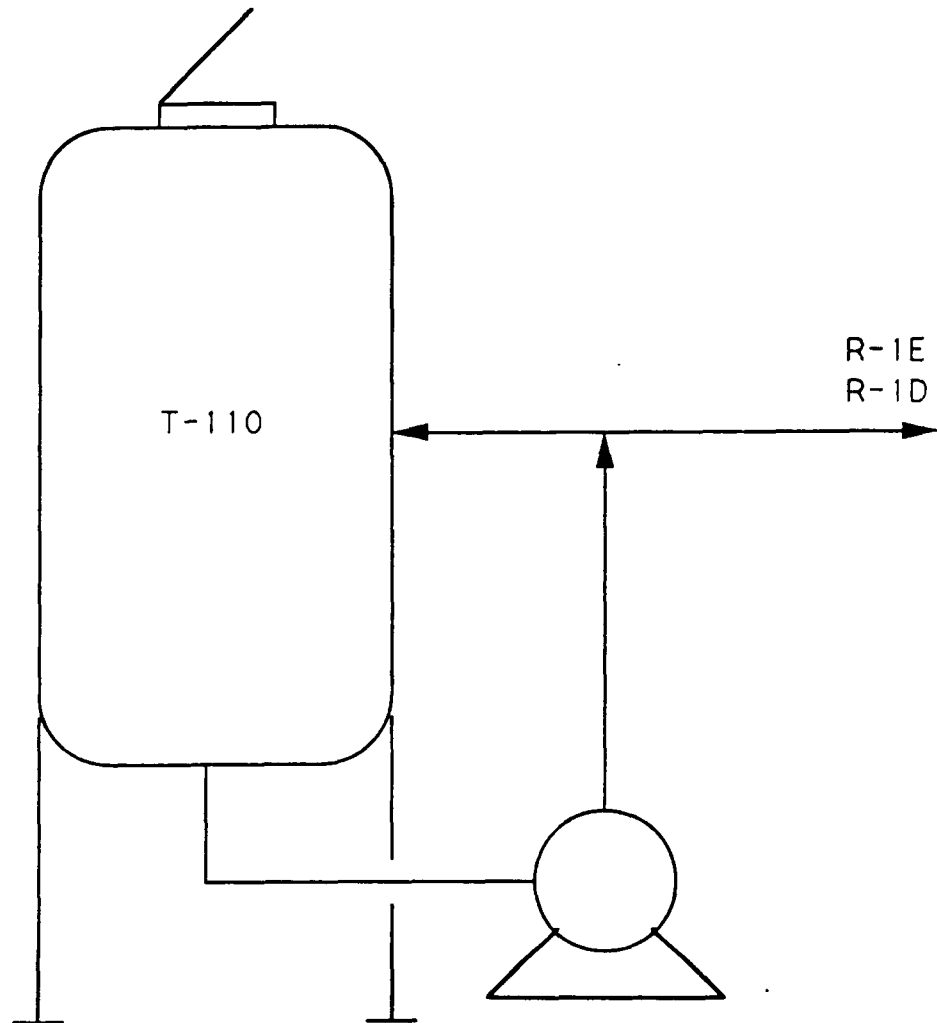
**TRIPS EBV'S ON LOW AIR
PRESSURE TO PREVENT
CONTAMINATION OF AIR
AIR HEADER**

C-14A EDC LIGHTS REMOVAL



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T-110 FERRIC CHLORIDE ADDITION DRUM



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T-110 IRON ADDITION POT

POTENTIAL

EXPLOSIVE MIXTURE IN THE
VAPOR SPACE OF THE DRUM

SYSTEM

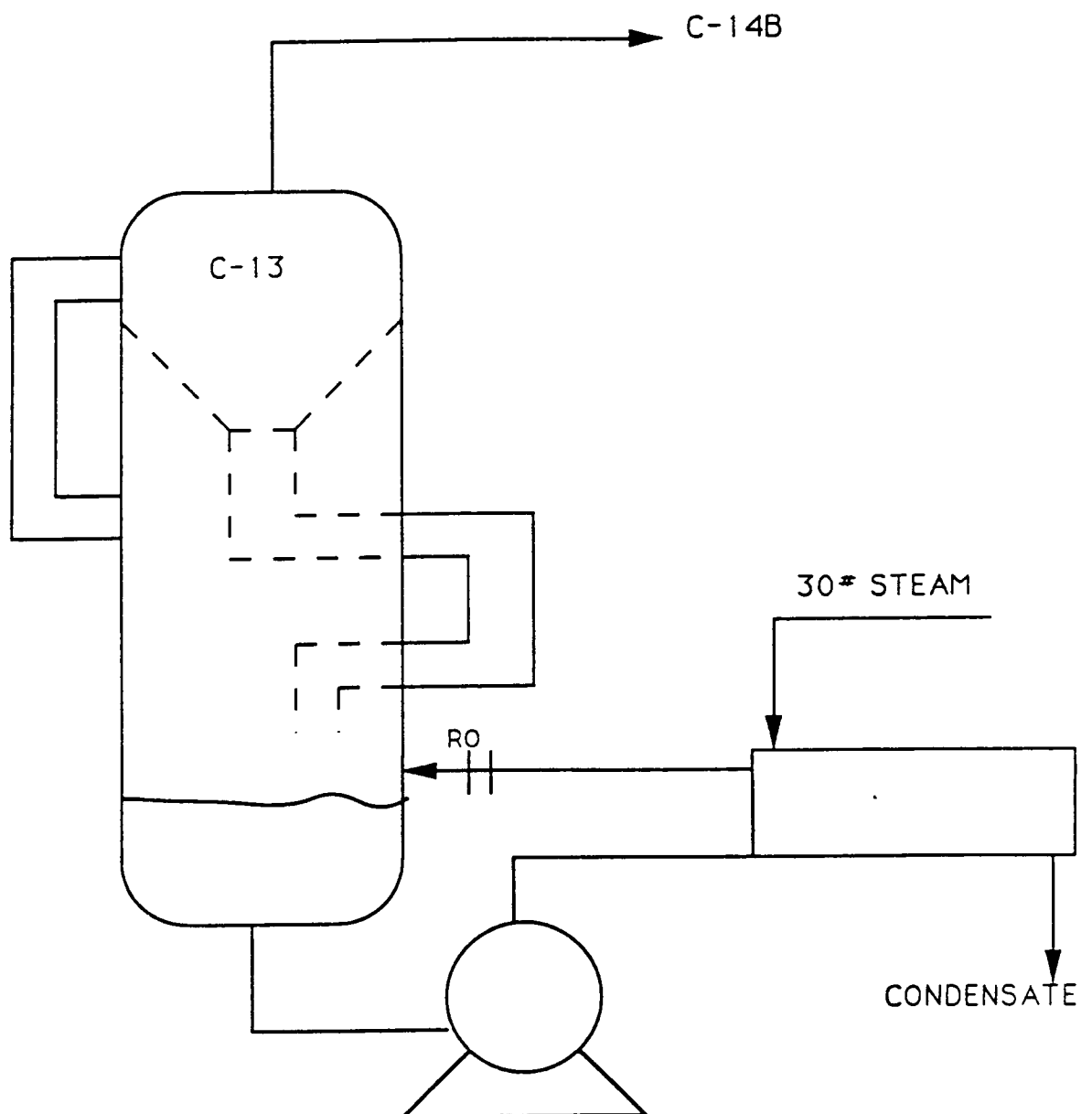
SUPPLY VERIFICATION OF DRUM

SOLUTION

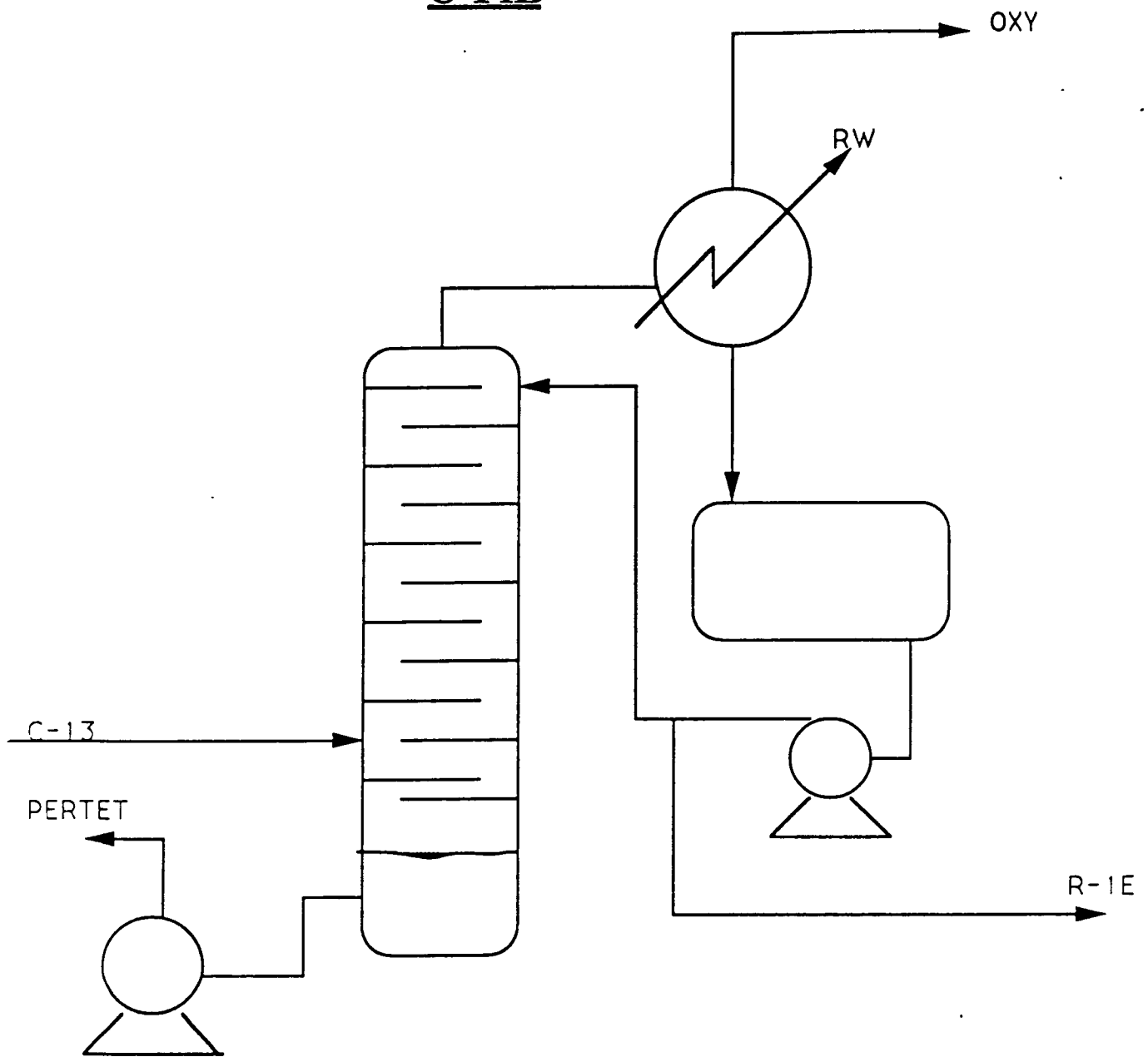
EVALUATING AN
ISOLATION CHAMBER

THIS IS THE ONLY
PRODUCT
PACKAGED IN THIS TYPE
CONTAINER

C-13 TARPOT SYSTEM



C-14B



LOUISIANA DIVISION
REACTIVE CHEMICALS REVIEW

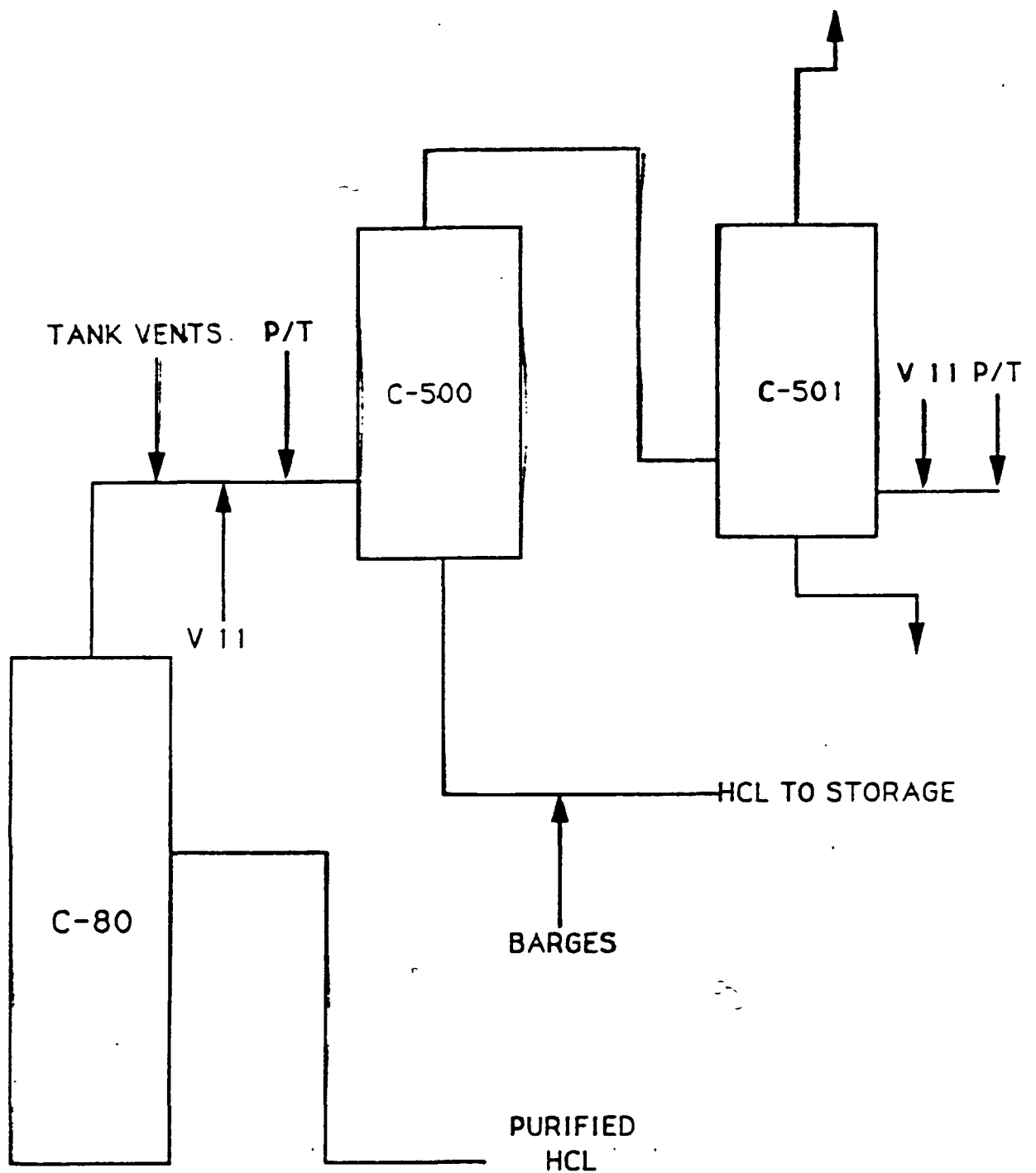
ANHYDROUS HYDROGEN CHLORIDE
AQUEOUS HYDROCHLORIC ACID

DECEMBER 14, 1989

BY: WAYNE MILLER

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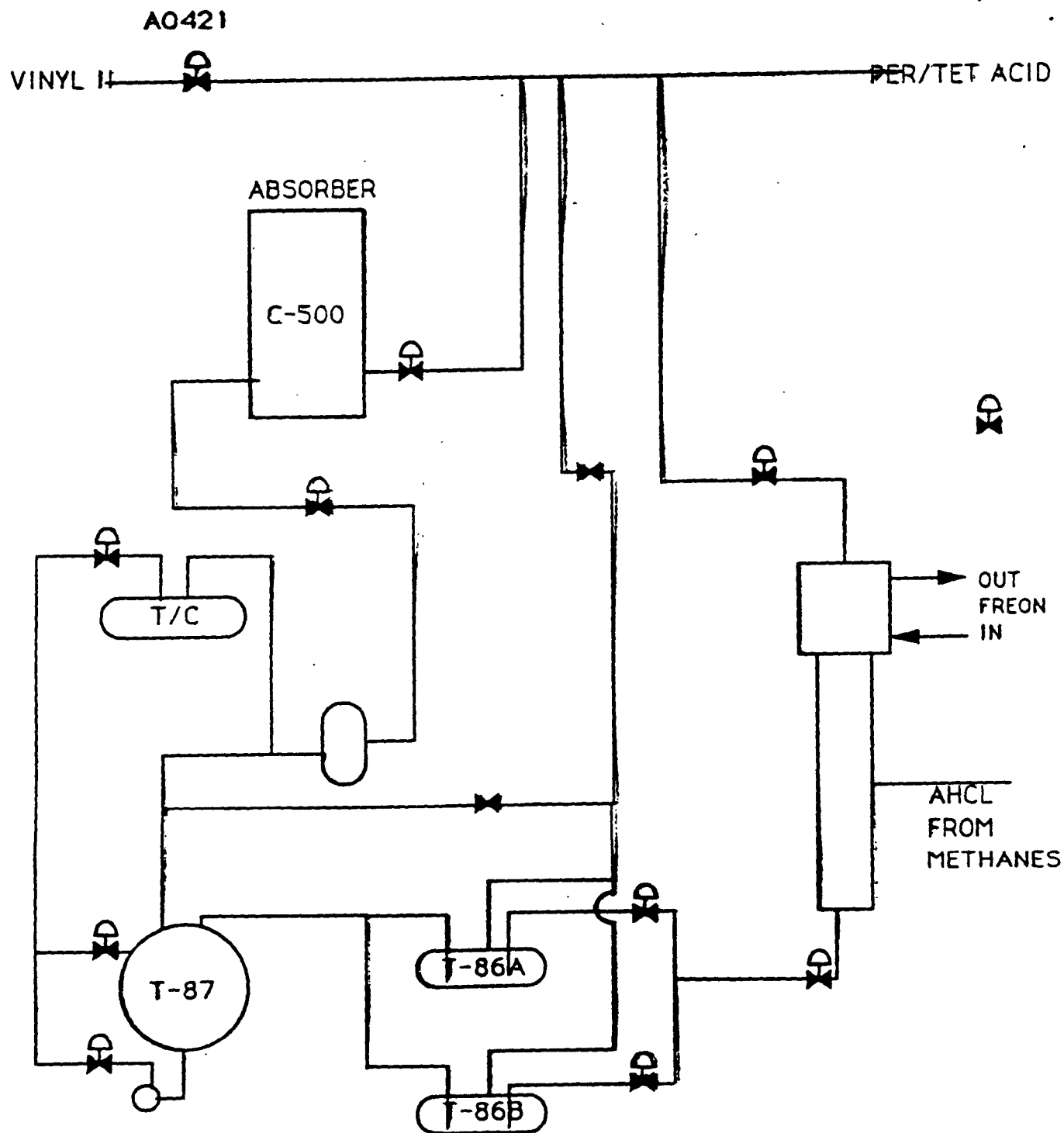
ABSORPTION UNIT



WAM 12/89

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ACID DISTRIBUTION



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THE SOLVENTS/EDC I PLANT RECEIVES AND PRODUCES HCL FROM THREE SOURCES. THESE PRODUCTS ARE EITHER LIQUIFIED, ABSORBED IN WATER, OR COMPRESSED AND TRANSPORTED TO THE OXYCHLORINATION PROCESS AT VINYL II.

PURIFIED HCL IS ORIGINATED IN THE VINYL PROCESS AND TRANSPORTED VIA PIPELINE TO THE CHLORINATED METHANES PLANT WHERE THE ACETYLENE AND ETHYLENE IMPURITIES ARE REMOVED. IT IS THEN TRANSPORTED TO THE SOLVENTS/EDC I PLANT FOR LIQUEFACTION AND SOLD. THIS ELECTRONIC GRADE HCL HAS LITTLE REACTIVE CHEMICALS POTENTIAL EXCEPT WITH WATER AND CAN BE MIXED WITH ALL OTHER SOURCES OF HCL WITHOUT RISK.

PER/TET-PRODUCED HCL IS HIGH-QUALITY HCL WHICH NORMALLY HAS NO HYDROCARBON POTENTIAL, BECAUSE THE PER/TET PROCESS OPERATES CHLORINE-RICH AT ALL TIMES. THIS MATERIAL, HOWEVER, DOES HAVE THE POTENTIAL TO CONTAIN CHLORINE AND, THEREFORE, MUST BE MONITORED CLOSELY. IF THIS STREAM DOES BECOME CONTAMINATED WITH CHLORINE, IT MUST NOT BE USED IN OXYCHLORINATION OR MIXED WITH HCL WHICH HAS EXCESSIVE ACETYLENE OR ETHYLENE.

VINYL II PRODUCES HCL WHICH IS HIGH IN ACETYLENE AND ETHYLENE. THE SOLVENTS/EDC I PLANT HAS THE POTENTIAL TO ABSORB THIS HCL. HOWEVER, THIS IS NOT DONE WHEN THE PER/TET PLANT IS PRODUCING HCL, BECAUSE THE POTENTIAL TO MIX THE ACIDS WHILE PER/TET ACID CONTAINS CHLORINE WOULD CREATE A HAZARDOUS SITUATION. THIS IS PREVENTED THROUGH MOD V PROGRAMMING, WHICH ALARMS IF A FLOW FROM VINYL II IS DETECTED. ALARMS AND AUTOMATED VALVE CLOSURE IS ACTIVATED WHEN THE PER/TET PROCESS IS IN AN UPSET CONDITION.

METHANES AHCL IMPURITIES

VINYL CHLORIDE	< 1 PPM
METHANE	< 10 PPM
ETHANE	< 10 PPM
ETHYLENE	< 1 PPM
ACETYLENE	< 1 PPM
NITROGEN	100-1500 PPM

TEMPERATURE: 30°C
PRESSURE: 195-200 PSIG

PROCESS DESIGN

HIGH PRESSURE AHCL (195 PSIG) ENTERS C-80, WHICH IS A LOW TEMPERATURE COLUMN WITH TWO PACKED SECTIONS AND A FREON-22 COOLED CONDENSER MOUNTED ON TOP OF IT. LIQUEFACTION RATES ARE CONTROLLED BY LEVEL CONTROL OF THE FREON ON THE EXCHANGER. LIQUID AHCL IS LEVEL CONTROLLED TO ONE OF TWO HIGH PRESSURE CHECK TANKS (110 PSIG). THIS AHCL CAN BE LOADED BY PRESSURE ON RAIL CARS OR TRANSFERRED TO T-87 (75 PSIG). T-87 HAS AN AUTOMATED PUMPING SYSTEM WITH AUTOMATIC SHUTDOWN FOR LOADING RAIL CARS ON ELECTRONIC SCALES.

HIGH AFFINITY FOR WATER

AQUEOUS HCL IS FORMED IMMEDIATELY UPON CONTACT WITH WATER OR WATER VAPOR IN THE AIR. HEAT OF REACTION IS APPROXIMATELY 200 BTU/POUND. PRECAUTIONARY PROCEDURES TO PREVENT SUCH OCCURRENCES ARE:

ALL EQUIPMENT IS BLOWN WITH NITROGEN TO -40°C PRIOR TO PUTTING INTO HCL SERVICE.

IMPURITY REACTIONS

THIS STREAM HAS LITTLE POTENTIAL FOR IMPURITY REACTIONS DUE TO THE LOW CONCENTRATIONS OF HYDROCARBONS AND CHLOROHYDROCARBONS IN THIS STREAM. HOWEVER, THIS STREAM IS CONTINUOUSLY MONITORED FOR LOW CONCENTRATIONS OF THESE PRODUCTS DUE TO THE QUALITY REQUIREMENTS OF OUR CUSTOMERS. IF THE CONCENTRATION OF THESE IMPURITIES RISE ABOVE 5 PPM, THE COLUMN IS SHUT DOWN UNTIL THE PURIFICATION SYSTEM STABILIZES.

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PER/TET AHCL IMPURITIES

TOTAL HYDROCARBONS	< 10 PPM
CARBON MONOXIDE/CARBON DIOXIDE	< 500 PPM
CHLORINE	< 5 PPM

TEMPERATURE: -75°C
PRESSURE: 12 PSIG COMPRESSED TO 120 PSIG

PROCESS DESIGN

THE AHCL/CHLORINE MIXTURE IS DISTILLED IN C-510 AND IS COMPRESSED AND TRANSPORTED TO THE HEADER TO EITHER BE ABSORBED IN THE ADIABATIC ABSORBER (C-500) OR USED IN OXYCHLORINATION AT THE VINYL II PLANT.

A LOW PRESSURE LINE WHICH BYPASSES THE COMPRESSOR IS UTILIZED AT TIMES. THE GAS FROM C-510 IS HEATED TO -10°C AND ABSORBED IN C-500. THIS LINE WAS DESIGNED TO ENHANCE THE RELIABILITY OF THE PER/TET PLANT WHEN COMPRESSOR MAINTENANCE IS NECESSARY.

MOD V CONTROL IS USED TO PREVENT HCL CONTAMINATED WITH CHLORINE FROM THE OXYCHLORINATION PROCESS FROM BEING IMPORTED INTO THE SYSTEM. IF C-510 COLUMN WARMS ABOVE DESIGNED OPERATING TEMPERATURE OR THE CHLORINE ANALYZER EXCEEDS 5 PPM, THE VALVE (AO421) WILL AUTOMATICALLY CLOSE, ISOLATING THE PER/TET PROCESS FROM THE OXYCHLORINATION PROCESS.

VINYL II AHCL IMPURITIES

VINYL CHLORIDE	< 1 PPM
ACETYLENE	< 2500 PPM
ETHYLENE	< 100 PPM
METHANE	< 20 PPM
ETHANE	< 20 PPM
NITROGEN	< 5000 PPM

TEMPERATURE: 30°C
PRESSURE: 105 PSIG

PROCESS DESIGN

AHCL CAN ENTER THE SOLVENTS/EDC I PLANT VIA THE SAME LINE USED TO TRANSPORT HCL TO THE VINYL II PLANT. THIS PROCESS IS NOT UTILIZED IF THE PER/TET PLANT IS OPERATING. THIS FLOW IS MONITORED BY TWO METER RUNS INTO THE BLOCK AND IS ALARMED IF THIS CONDITION EXISTS. THIS CONDITION RARELY EXISTS, AND NO POTENTIAL FOR REACTIVITY EXISTS IF THE PER/TET PLANT IS DOWN AND NO CHLORINE IS PRESENT IN THE HCL.

AQUEOUS HCL

HIGH CORROSIVITY

AQUEOUS HCL IS CORROSIVE TO VIRTUALLY ALL COMMON METALS. PRECAUTIONS SHOULD BE USED IN SELECTION OF COMPATIBILITY OF MATERIALS IN THIS SERVICE.

- A. USE OF SELECT MATERIALS OF CONSTRUCTION WHICH INCLUDE TEFLON, POLYPROPYLENE, FIBERGLASS, KYNAR, KARBATE, AND RUBBER.
- B. SPILLS SHOULD BE WASHED WITH COPIOUS AMOUNTS OF WATER TO NEUTRALIZE THE MATERIAL.

HAZARDOUS TO HUMANS

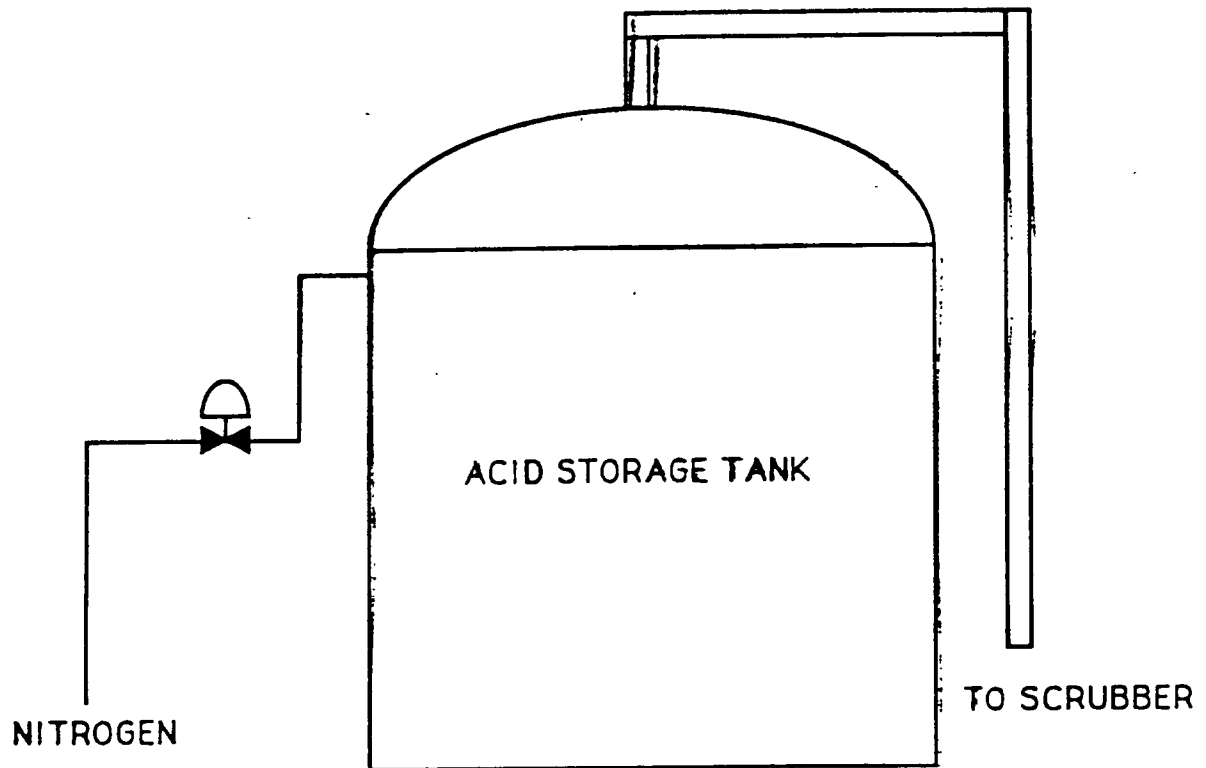
AQUEOUS HCL READILY ATTACKS THE SKIN AND MUCOUS MEMBRANE AREAS. VAPOR INHALATION SHOULD NOT EXCEED 5 PPM.

REACTION WITH CARBON STEEL

IN RUBBER-LINED VESSELS, ANY FAILURE OF THE LINER WILL EXPOSE THE METAL TO HCL. THE CORROSIVE REACTION GENERATES HYDROGEN WHICH IS HIGHLY FLAMMABLE.

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PURGING ACID STORAGE TANKS



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ACCUMULATION IN TANKS

THE ACCUMULATION OF INSOLUBLE AND BY-PRODUCT FLAMMABLES IS A CONCERN IN THE VAPOR SPACE OF STORAGE TANKS. THIS IS PREVENTED BY THE USE OF NITROGEN PURGING OF TANKS THROUGH FLOW CONTROLLERS AND LEVEL TRANSMITTERS. THE PURGES ARE INSPECTED ON DAILY ROUNDS TO ASSURE NO INTERRUPTION OF FLOWS NECESSARY TO MAINTAIN LOW CONCENTRATIONS OF ANY FLAMMABLES IN TANKS.

LOUISIANA DIVISION

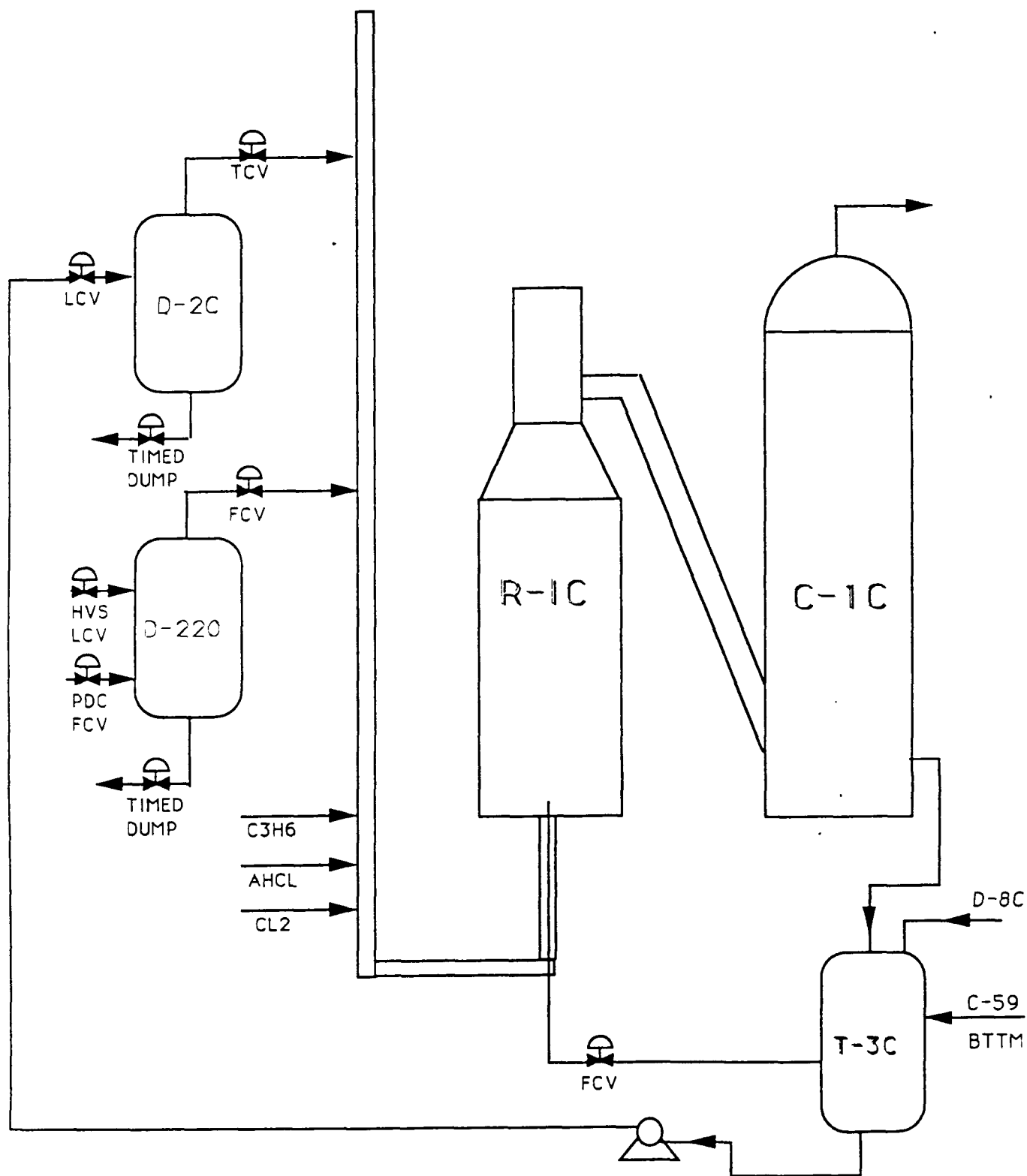
PER/TET REACTIVE CHEMICALS REVIEW

DECEMBER 14, 1989

BY : MIKE BIZZARRO

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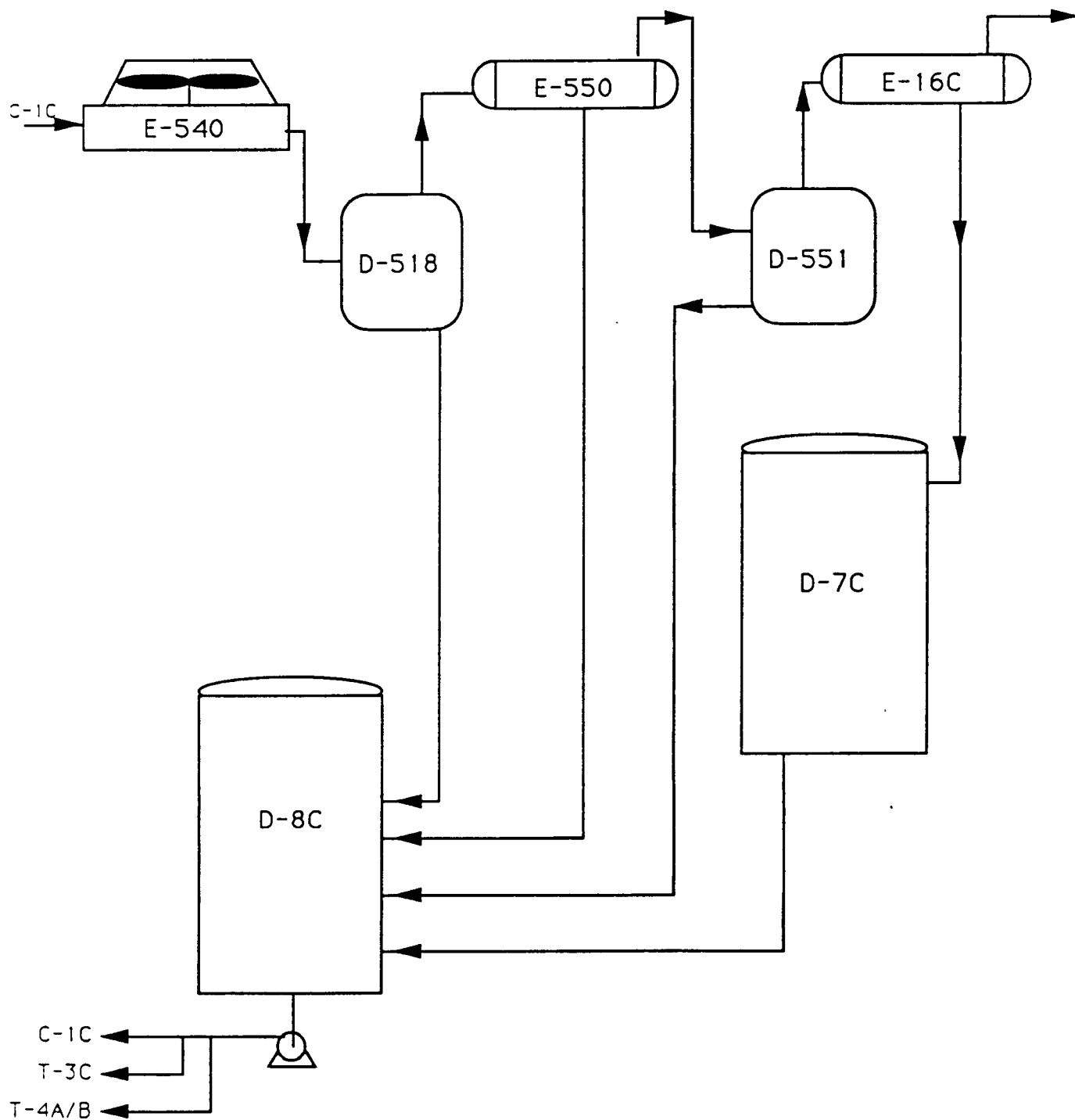
PER/TET REACTOR OVERVIEW



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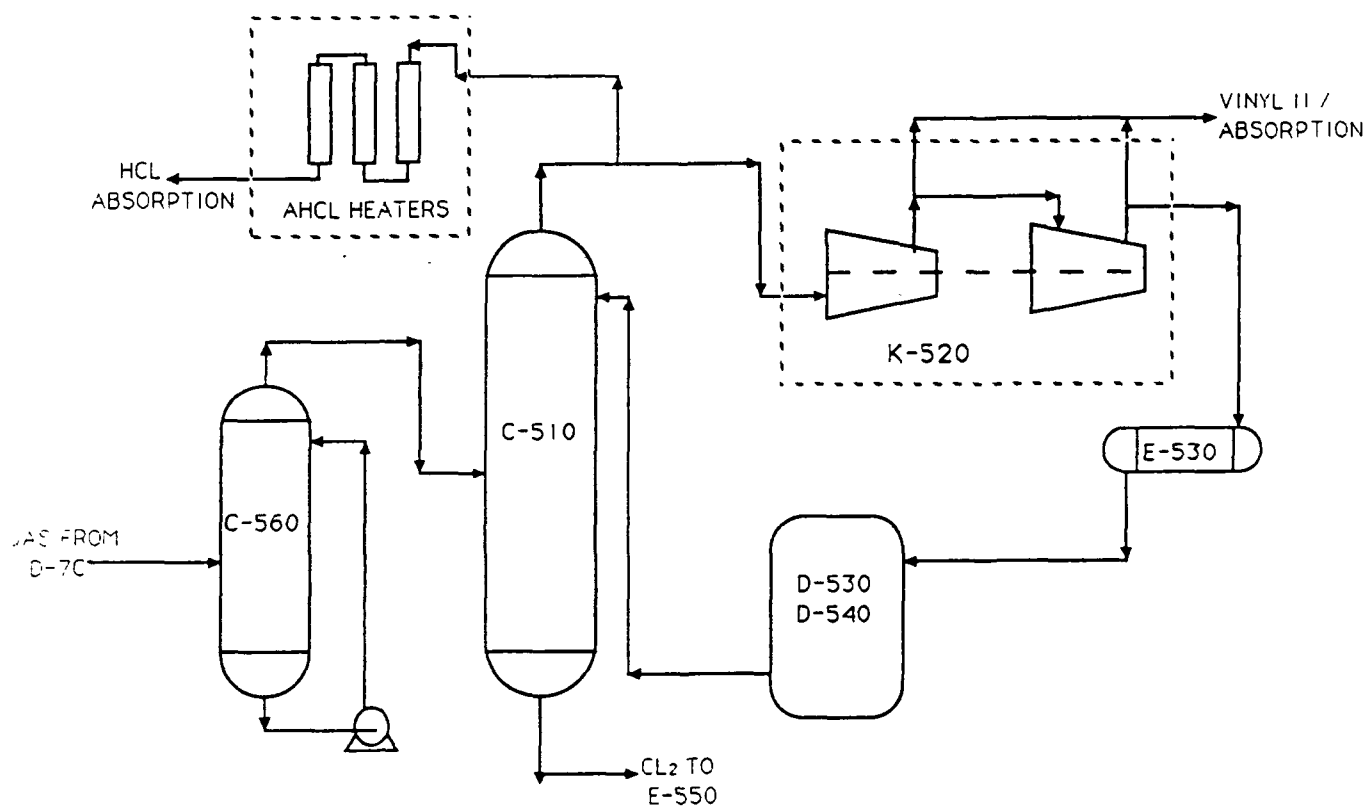
PER/TET CONDENSING TRAIN



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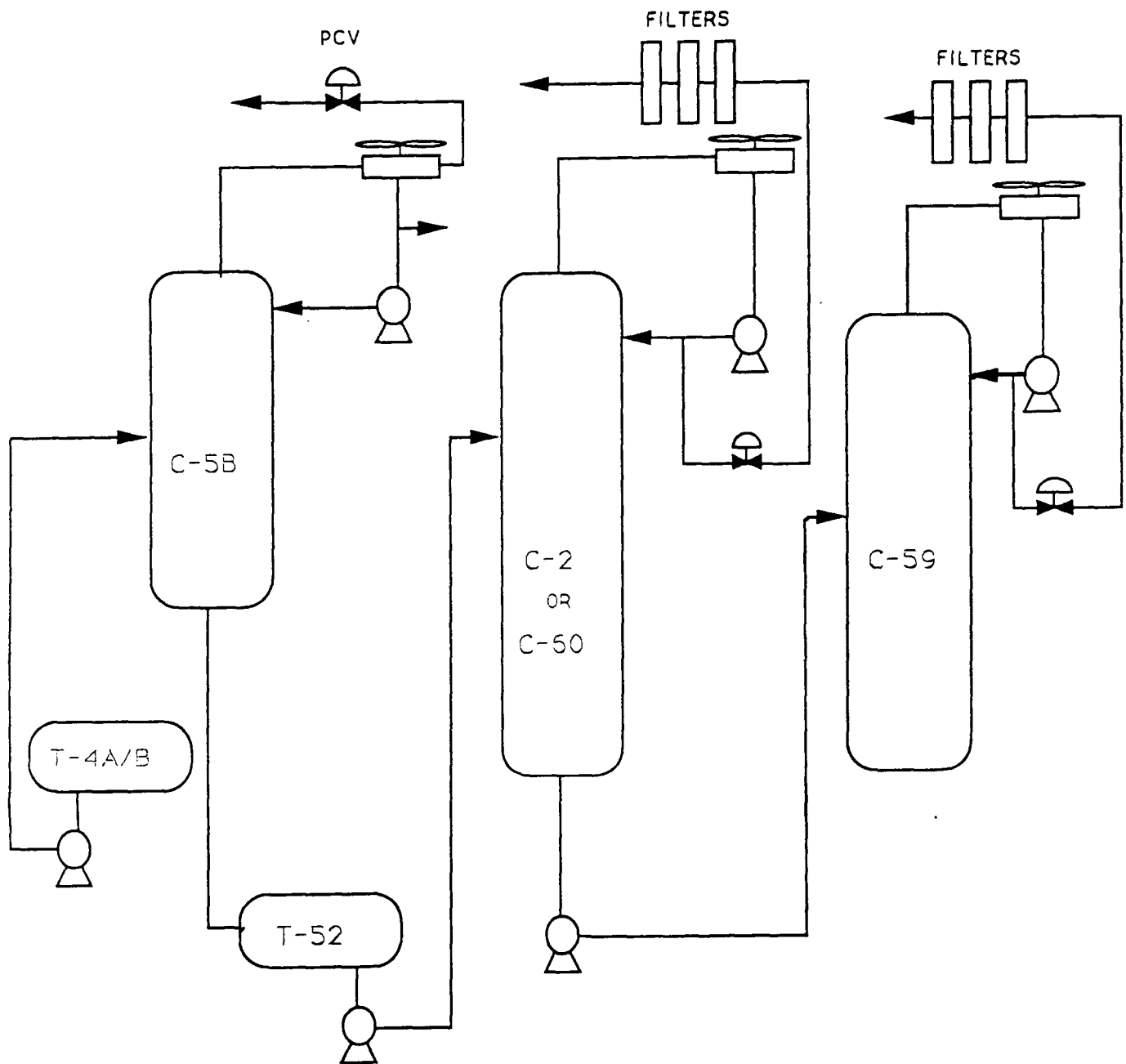
SOLVENTS LIGHTS SEPARATION



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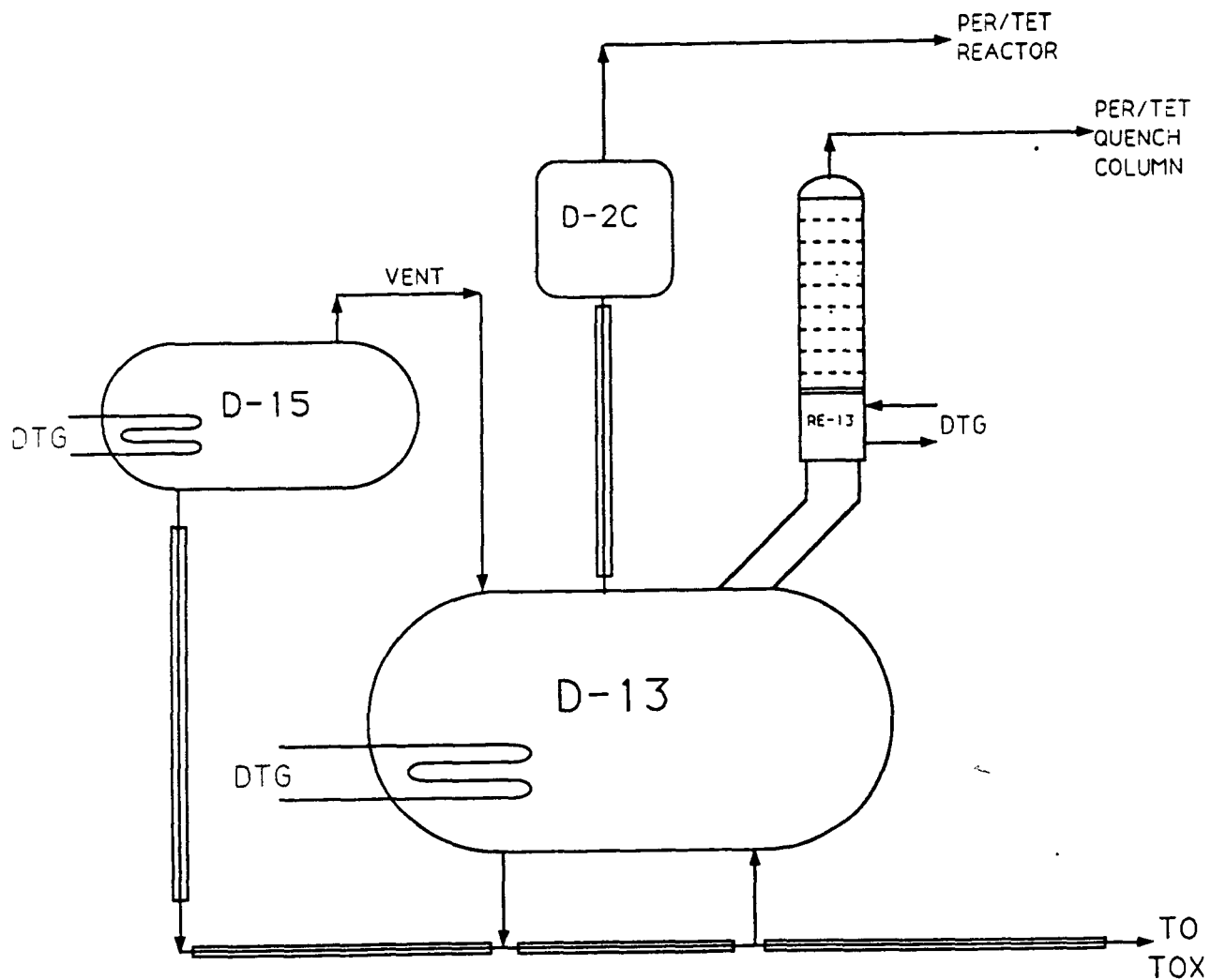
PER/TET DISTILLATION



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HEX SYSTEM OVERVIEW



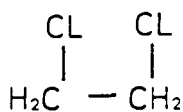
PROCESS OVERVIEW

I. MAJOR REACTION

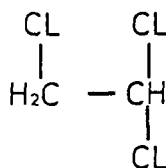


II. FEEDS

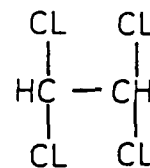
EDC



B-TRI



TCE



CRUDE TET

CRUDE PER

III. SIDE REACTION



ALSO FORMED: HCBZ AND HCBZ

PER/TET REACTIVE CHEMICAL CONCERNS

LOSS OF DILUENT - RUNAWAY REACTION

- 1.) AHCL IS AVAILABLE AS A BACKUP DILUENT SOURCE

CHLORINE /IRON FIRE

- 2.) CHLORINE AND IRON WILL REACT AT ELEVATED TEMPERATURES

DURING UPSET CONDITIONS, CHLORINE MAY BE PRESENT IN THE AHCL COMPRESSOR SYSTEM. THE Cl_2 IN C-510 OVERHEADS AND THE FIRST STAGE DISCHARGE OF THE AHCL COMPRESSOR ARE CONTINUOUSLY MONITORED. ALSO MONITORED ARE THE SUCTION AND DISCHARGE TEMPERATURES OF THE COMPRESSOR. ALARMS AND TRIPS ARE ASSOCIATED WITH THIS INFORMATION TO ASSURE CONDITIONS DO NOT EXIST FOR SUCH A FIRE.

CHLORINE REACTION WITH OIL/GREASE

- 3.) ALL VALVES USED IN Cl_2 SERVICE ARE PROPERLY CLEANED, WRAPPED, TAGGED, AND STORED IN A SEPARATE LOCATION FROM NON- Cl_2 SERVICE VALVES.

DRY CHLORINE FIRE WITH TITANIUM

- 4.) ALL TITANIUM IN THE BLOCK IS TAGGED SO IT IS NOT INSTALLED IN DRY CHLORINE SERVICE.

PER/TET REACTIVE CHEMICAL CONCERNS CONT.

LIQUID CHLORINE AS FEED TO REACTOR

- 5.) LIQUID CHLORINE FED TO THE REACTOR CAUSES INSTABILITY AND HAS IN THE PAST CAUSED VIOLENT EXPLOSIONS

THE TEMPERATURE OF THE Cl_2 FEED TO THE REACTOR IS CONTINUOUSLY MONITORED AND ALARMED IF IT FALLS BELOW A CALCULATED DEW POINT

REACTION BACKING INTO REACTOR INLET LINE

- 6.) TYPICALLY ONLY A CONCERN DURING STARTUP

INLET LINE TEMPERATURE IS MONITORED (CONTINUOUSLY DURING STARTUP) AND ALARMED. AHCL IS USED DURING STARTUP AS A DILUENT AND TO 'PUSH' THE REACTION FROM THE INLET LINE AND INTO THE REACTOR.

REACTION OF PERCHLOROETHYLENE WITH CHLORINE

- 7.) PER AND Cl_2 CAN REACT AT AMBIENT TEMPERATURES. EXAMPLES INCLUDE A TAFFY POT AT CAII AND THE DISTILLATION TOWER AT CL3 IN TEXAS BOTH BLOWING UP

STANDARD OPERATING PROCEDURE PROHIBITS THE USE OF PER TO FLUSH ANY EQUIPMENT WHICH MAY CONTAIN FREE Cl_2 . CARBON TET IS USED TO FLUSH EQUIPMENT AND AS A SOLVENT IN THE TAFFY POT OPERATION AT Cl_2 AND CAII.

FERRIC OXIDE REACTION WITH AHCL

- 8.) THE REACTION OF FERRIC OXIDE AND WATER PRODUCES WATER WHICH IN TURN FORMS AQUEOUS HCL . THE AQUEOUS HCL IS HIGHLY CORROSIVE.

NEW CARBON STEEL LINES PUT IN AHCL SERVICE ARE ACIDIZED AND PASSIVATED.

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PER/TET REACTIVE CHEMICAL CONCERNS CONT.

SOLID CAUSTIC REACTION WITH WATER

- 9.) SOLID CAUSTIC AND WATER REACT VIOLENTLY
A DI OCCURRED IN SARNIA WHEN HOT CAUSTIC BURPED OUT OF
THE TOP OF A CUASTIC POT

OPERATING DISCIPLINE AND PROCEDURES ARE USED TO AVOID
INCIDENTS WHEN CLEANING CAUSTIC POTS. A NEW FILTER SYSTEM
ELIMINATING THE USE OF CAUSTIC IS IN THE EARLY DESIGN PHASES.

ALUMINUM REACTION WITH FREON

- 10.) THE SOLVENTS PLANT'S REFRIGERATION MACHINE FAILED IN
JUNE 1979 DUE TO A ALUMINUM/FREON 22 REACTION

BOTH THE REFRIGERATION MACHINES IN THE SOLVENTS PLANT HAVE
NO ALUMINUM IN CRITICAL AREAS.

LIQUID PROPYLENE AS FEED TO REACTOR

- 11.) LIQUID PROPYLENE FED TO THE REACTOR CAUSES INSTABILITY
CHANGE HYROCARBON PRIME FEED TO ETHYLENE

Data

Flammability Diagram for
Propylene - Chlorine - Nitrogen

@ ambient Temperature (25°C)
and atmospheric pressure,

Based on literature values of
other systems and extrapolation
of patterns.

Dan O'Shaughnessy 1-12-88
Analytical sciences.

Guestimate
upper limit

5110 46 4490

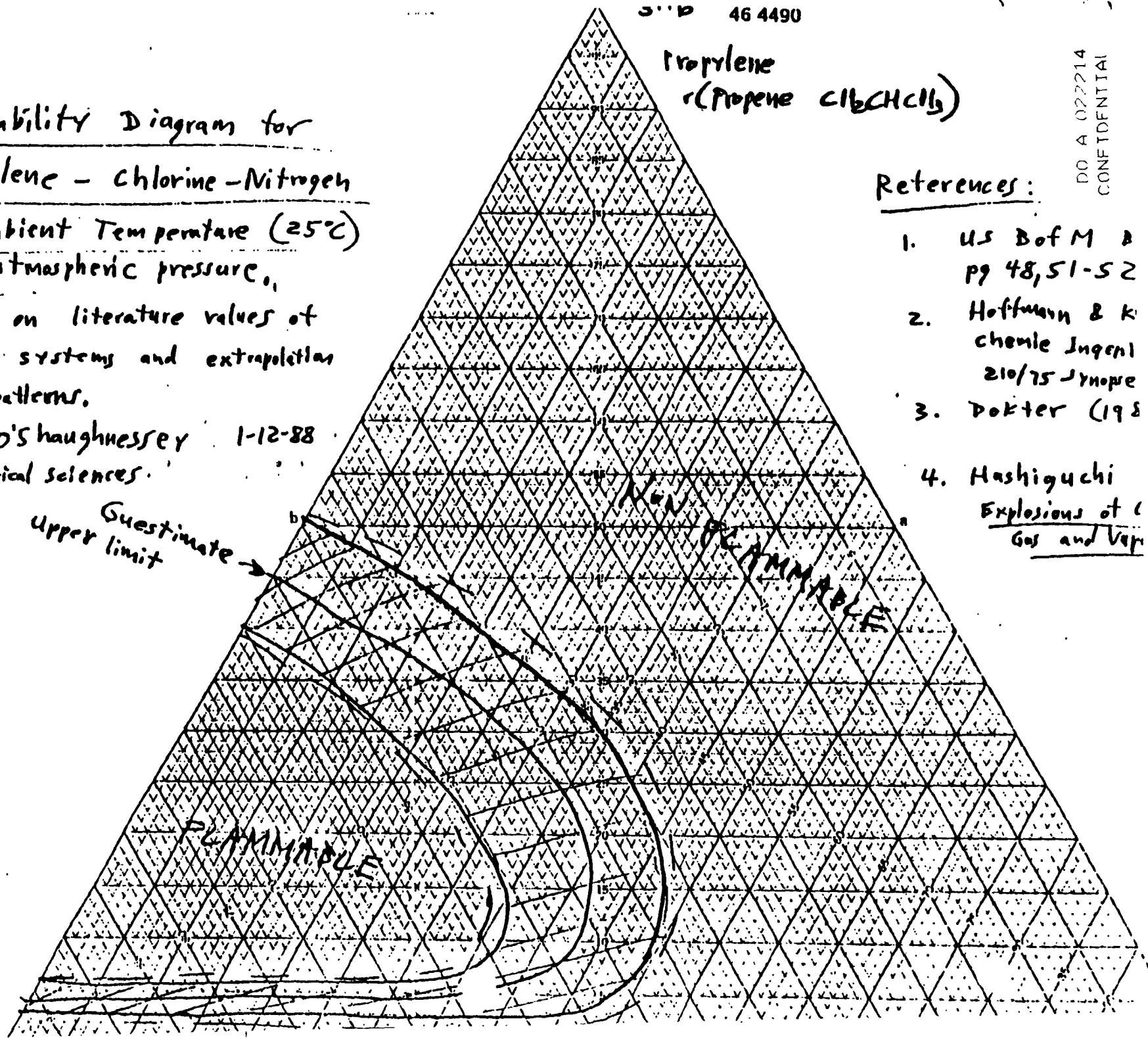
Propylene
(Propene C_3H_6)

References:

1. US BofM 2
pg 48, 51-52
2. Hoffmann & K
chemie Ingeni
210/75 Synopse
3. Dokter (198
4. Hashiguchi
Explosions of
Gas and Vap

DO A 022214
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Chlorine
 Cl_2



Explosive Limits

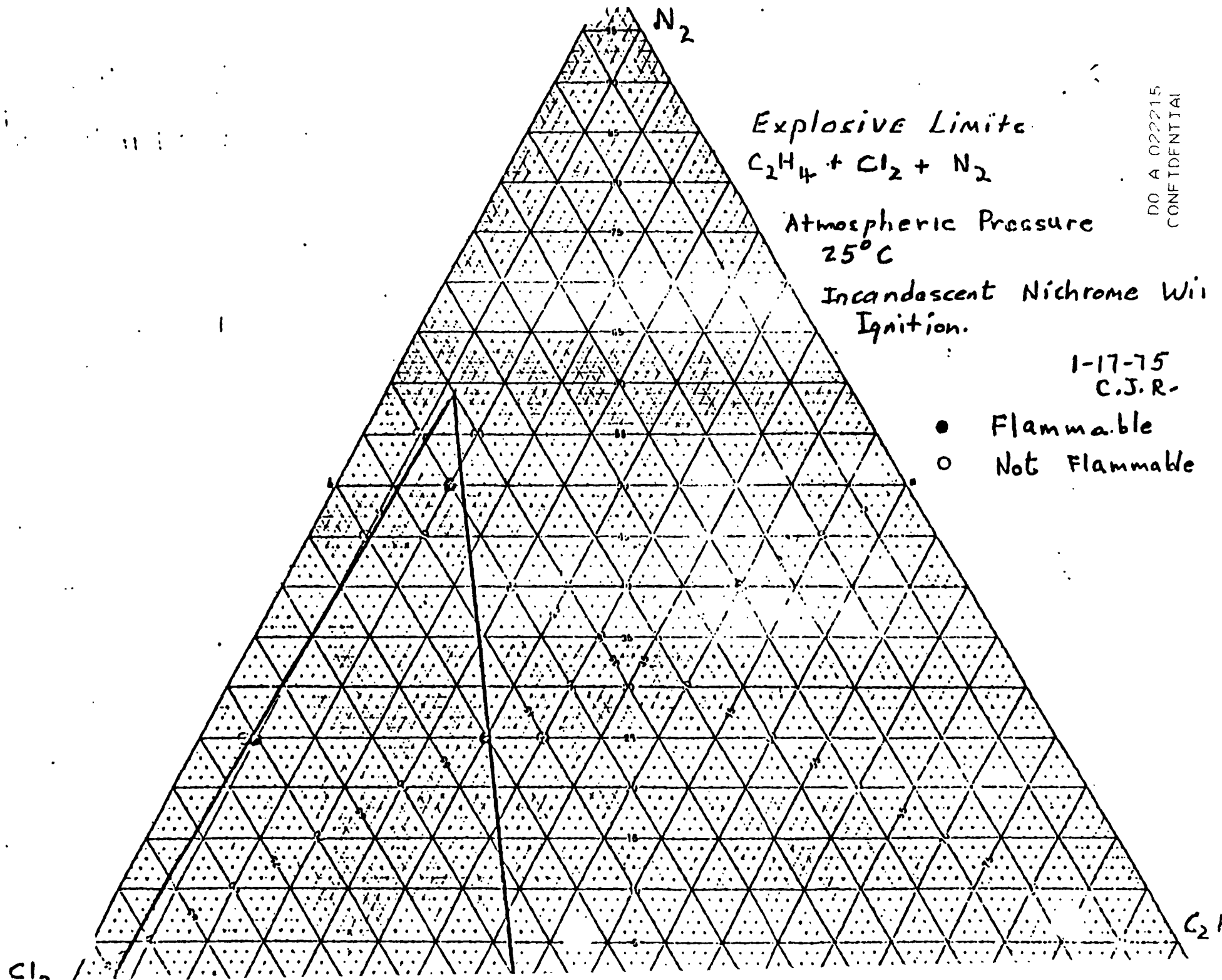


Atmospheric Pressure
25°C

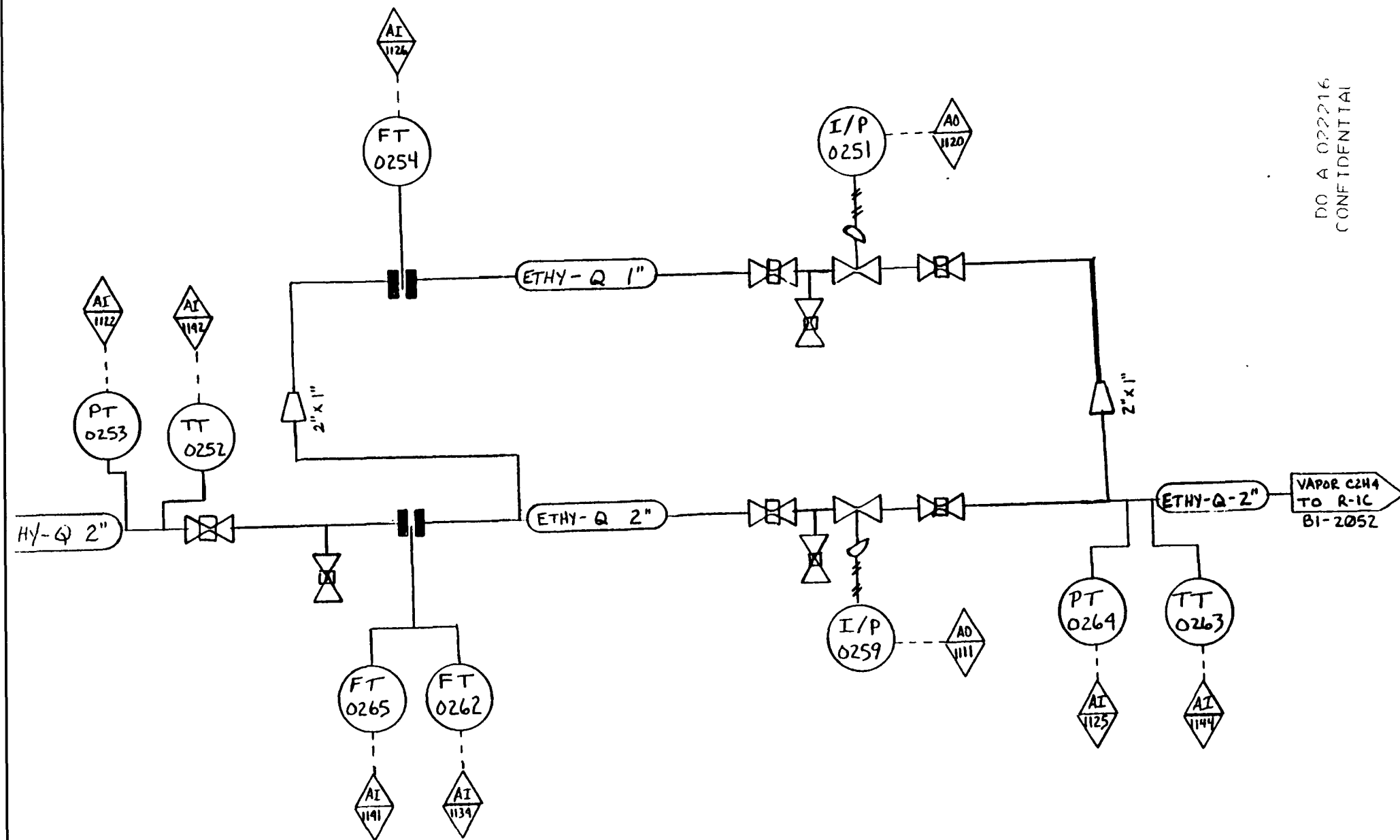
Incandescent Nichrome Wire
Ignition.

1-17-75
C.J.R.

- Flammable
- Not Flammable



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ETHYLENE TO R-1C
BI-2030 C40-001

LAD SOLVENTS THERMAL OXIDIZER REACTIVE CHEMICALS REVIEW

DECEMBER 14, 1989

BY: LEN CONLEY

DO A 022217
CONFIDENTIAL

LAD SOLVENTS TOX FACT SHEET

DESCRIPTION

THE SOLVENTS TOX IS A HORIZONTAL, LIQUID INJECTION INCINERATOR RATED AT 23.5 MMBTU/HOUR.

FUNCTION

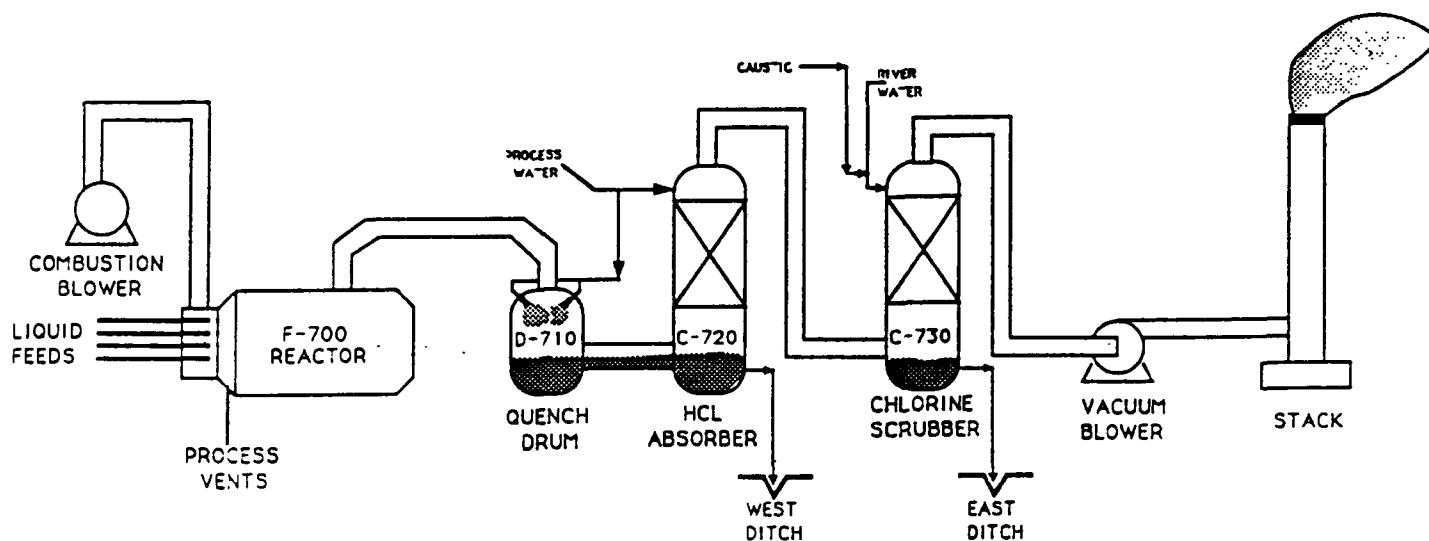
THE THERMAL OXIDIZER WAS ORIGINALLY DESIGNED TO INCINERATE FOUR PROCESS WASTE STREAMS:

HEX WASTE	- HEAVIES PRODUCED IN PER/TET REACTOR
EDC I WASTE	- HEAVIES PRODUCED IN EDC REACTOR
TAFFY	- HEAVIES PRODUCED IN CHLORINE
PLANTS	
SOLVENTS WASTE	- HEAVIES DUMPED FROM PER/TET FEED EVAPORATORS

CURRENTLY, SOLVENTS' THERMAL OXIDIZER IS UTILIZED TO DISPOSE OF SEVERAL OTHER WASTES GENERATED IN DOW'S LOUISIANA DIVISION AS NEEDED.

REPLACEMENT COST: \$4 MM

SOLVENTS TOX FLOWSHEET



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OPERATING CONDITIONS

1. TEMPERATURE	1100 - 1500 C
2. FEED RATE	2 - 10 GPM
3. HEAT LOAD	8 - 21 MMBTU/HR
4. TYPICAL OPERATING RATE	20 MMBTU/HR
5. CHLORINE LOAD	0 - 7000 LBS/HR
6. RESIDENCE TIME	1.59 - 3.00 SECONDS
7. PRESSURE	5 - 25 " WATER VACUUM
8. OXYGEN CONCENTRATION	3 - 10 %
9. CARBON MONOXIDE	10 - 30 PPM
10. COMBUSTION EFFICIENCY	99.98 %
11. DRE	99.9999 %

TOX PERMITTED SHUTDOWNS

<u>SHUTDOWN PARAMETER</u>	<u>PERMIT LIMIT</u>	<u>TIME DURATION</u>
LOW TEMP	< 1,100° C	2 seconds
HIGH AIR FLOW	> 25,000 #/HR	2 seconds
LOW PRESS ON LIQ. NOZZLES	< 41 PSIG	2 seconds
LOW SCRUBBER PH	< 7.5 PH	2 seconds
LOW ABSORBER WATER FLOW	< 25,000 #/HR	2 seconds
LOW SCRUBBER WATER FLOW	< 50,000 #/HR	2 seconds
LOW OXYGEN	< 2.0 %	2 seconds
LOW OXYGEN	< 3.0 %	30 seconds
HIGH CO	> 90 PPM	60 seconds
HIGH CO ROLLING AVG	> 100 PPM	2 seconds
HIGH CHLORINE LOAD	> 7000#/HR	20 seconds
HIGH BROMINE LOAD	> 95#/HR	20 seconds
HIGH PCB LOAD	> 2.3#/HR	20 seconds
HIGH ASH LOAD	> 1.6#/HR	20 seconds
HIGH BTU LOAD	> 23 MM BTU/HR	20 seconds

CURRENT REACTIVE CHEMICALS CONCERNS & SOLUTIONS

1. WASTE FEED HANDLING (COMPATIBILITY/REACTIVITY)
2. VENT STREAM HANDLING (COMPATABILITY/REACTIVITY)
3. GENERAL PROCESS PROTECTION

1. WASTE FEED HANDLING

- A. TAFFY FEED: FEED COMPOSITION HIGH IN LIQUID CHLORINE. TAFFY FED INTO TOX THROUGH AN INDEPENDENT FEED SYSTEM AND NOZZLE USED ONLY FOR THIS SERVICE.
- B. HEX WASTE: WASTE AT 200°C AND CONTAINS FREE CHLORINE. WASTE FED TO TOX THROUGH AN INDEPENDENT FEED SYSTEM AND NOZZLE USED ONLY FOR THIS SERVICE.
- C. GENERAL WASTE: REACTIVE CHEMICAL TESTING IS DONE ON ALL NEW FEEDS TO DETERMINE COMPATABILITY WITH OTHER WASTES THAT MAY COME IN CONTACT WITH THE NEW WASTE. WASTE CHARACTERIZATION SHEETS MUST BE SUBMITTED FOR ALL NEW WASTE STREAMS.
- D. WASTE WITH FREE CHLORINE: PER/TET SATURATED WITH FREE CHLORINE WILL BE FED TO THE OXIDIZER THROUGH A FEED SYSTEM THAT HAS BEEN FLUSHED WITH PERCHLOR. PROCEDURES ARE WRITTEN FOR HANDLING THIS WASTE.
- E. REACTIVE WASTE: WILL NOT BE INCINERATED IN SOLVENTS TOX WITHOUT APPROVAL FROM THE REACTIVE CHEMICALS DEPARTMENT.

OTHER POSSIBLE WASTE FEEDS

- | | | | |
|----|---|---|-----|
| 1. | C-720 BOTTOMS: | EDC | 5% |
| | (VINYL II) | BET-TRI | 11% |
| | | TETRACHLOROETHANES | 6% |
| | | ALPHA-DI | 6% |
| | | C ₄ H ₅ CL ₃ | 29% |
| | | NVM | 1% |
| | | CHLOROBENZENE | 4% |
| 2. | T-11 BOTTOMS | | |
| | (GLYCOL II) | | |
| 3. | OTHER LA. DIVISION WASTES | | |
| | (IF COMPATIBLE WITH SOLVENTS TOX FEEDS) | | |

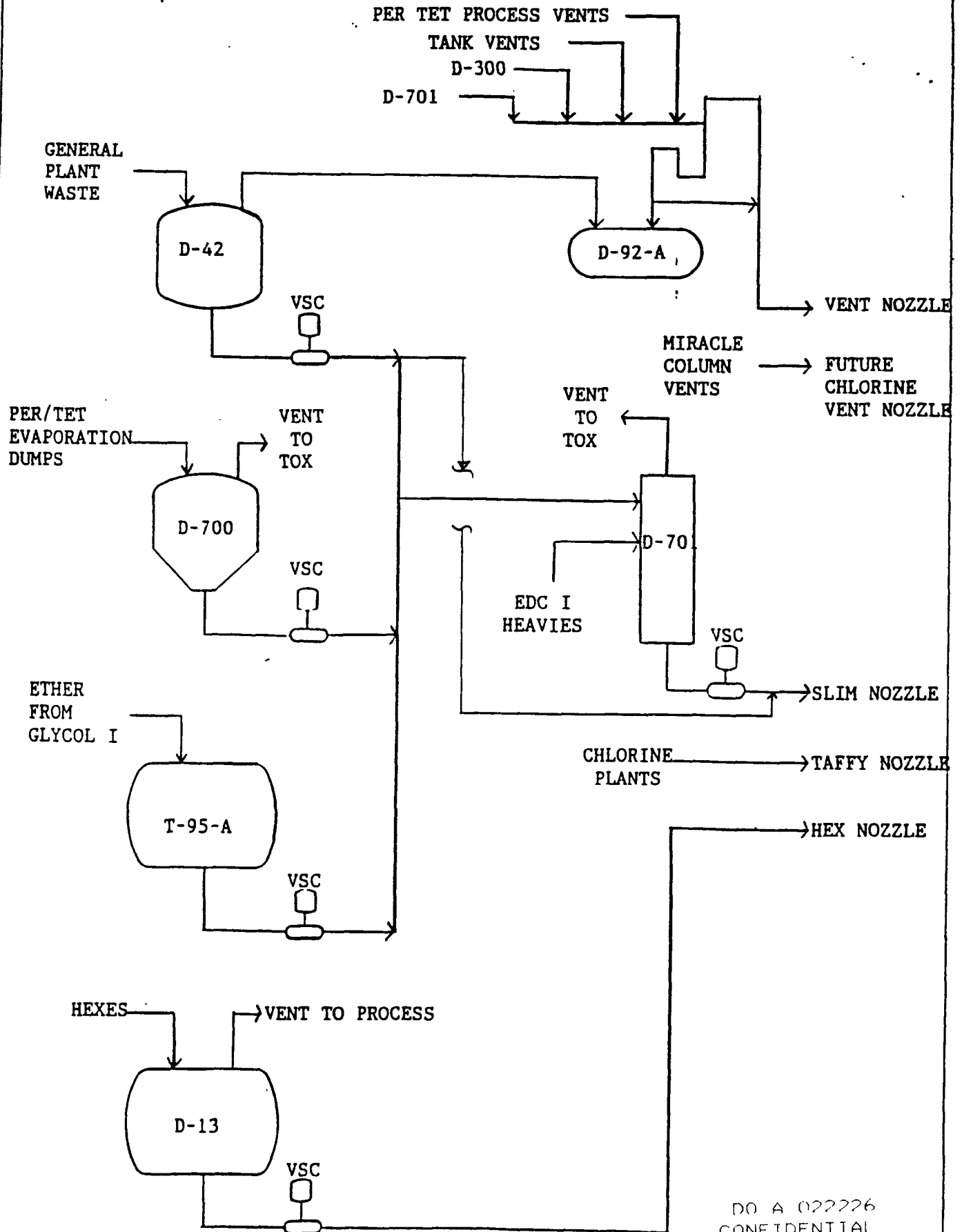
COMPOSITION OF WASTE STREAMS FED TO THE THERMAL OXIDIZER

NORMAL WASTE FEEDS

1.	HEX WASTE:	PERCHLORETHYLENE	5 - 20%
		HEXACHLOROETHANE	10 - 40%
		HEXACHLOROBUTADIENE	5 - 20%
		HEXACHLOROBENZENE	30 - 70%
2.	EDC I HEAVIES:	ETHYL CHLORIDE	0 - 2%
		EDC	10 - 70%
		BETA-TRI	10 - 50%
		TETRACHLOROETHANES	5 - 50%
		PENTACHLOROETHANES	0 - 5%
3.	SOLVENTS HEAVIES:	CARBON TET	1 - 10%
		PDC	10 - 50%
		EDC	1 - 10%
		BETA-TRI	5 - 30%
		TETRACHLOROETHANES	10 - 30%
		PENTAS & HIGHER	5 - 50%
4.	TAFFY:	LIQUID CHLORINE	50 - 80%
		CARBON TET	20 - 50%
		HEXES	1 - 5%
5.	ISOPAR C:	ISO OCTANE	70 - 80%
	(POLY A)	LUBE OIL	15 - 25%
		SHORE LUBE	5 - 10%
		PEROXIDE CATALYST	
6.	NPC WASTE:	GENERAL CHLORINATED	
	(PPI WASTE)	HYDROCARBONS	55 - 88%
		HEXOCHLOROBUTADIENE	10 - 30%
7.	BLOCK 49:	SIMILAR TO PPI WASTE	
8.	EB TARS	TETRAETHYLENE GLYCOL	
	(DOWANOLS)	BUTYL ETHER	10%
		PENTAETHYLENE GLYCOL	
		BUTYL ETHER	65%
		HEXAETHYLENE GLYCOL	
		BUTYL ETHER	15%
		HIGHER ETYHYLENE GLYCOL	
		BUTYL ETHER	5%
9.	ETHER	DI-ISOPROPYL ETHER	50%
	(GLYCOL I)	EPICHLOROHYDRIN	20%
		PDC	20%

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TOX FEED SYSTEM



2. MIXING VENT STREAMS

- A. FLAMMABLE VENTS: ALL FLAMMABLE VENTS HAVE A FLAME ARRESTOR INSTALLED IN THE VENT LINE. IN ADDITION, A NITROGEN PURGE IS MAINTAINED ON THE VENT AT THE OXIDIZER WHERE ALL COMPATIBLE PROCESS VENTS MIX.
- B. INCOMPATIBLE VENTS: REACTIVE CHEMICAL TESTING IS DONE TO INSURE THE COMPATIBILITY OF ALL VENTS MIXED. ANY INCOMPATIBLE VENTS (CHLORINE CONTAINING VENTS) FLOW THROUGH A DEDICATED VENT LINE AND INTO THE OXIDIZER THROUGH AN INDEPENDENT VENT NOZZLE.

3. GENERAL PROCESS PROTECTION

- A. ^{advent} RHLA ON ALL TOX STORAGE TANKS TO PREVENT LIQUID FROM ENTERING FURNACE.
- B. TEMPERATURE ALARM ON D-700 AND P-700.
- C. BURNER MANAGEMENT SYSTEM ON TOX.
- D. ALL PURGES ARE INERT: AIR, CCl_4 ON TAFFY, AND PER ON OTHER SYSTEMS.
- E. CRITICAL INSTRUMENT CHECK.

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REACTIVE CHEMICALS TESTING

<u>TEST</u>	<u>NO.</u>	<u>CHEMICAL MIXTURE</u>
1. LARC	# 173	HEXES AND DOWTHERM G
2. LARC	# 174	HEXES, FERRIC CHLORIDE, DOWTHERM G
3. LARC	# 191	T-95-A AND EDC I HEAVIES
4. LARC	# 192	T-95-A AND D-700
5. LARC	# 194	T-95-A AND D-67-C
6. DTA	# 86041 A-D	PPI WASTE AND D-700, EDC I HEAVIES, T-95-A
7. DTA	# 87064 A	BLOCK 49 WASTE AND TOX COMPOSITE WASTE
8. DTA	# 87065 A	DOWANOLS EB TARS AND TOX COMPOSITE WASTE
9. DTA	# 87065 B	POLY A ISOPAR C AND TOX COMPOSITE WASTE