

SPECIFICATIONS
FOR
HYDROCARBONS, LEAD ALKYL, AND SODIUM AREAS

BATON ROUGE PLANT

VC4486

HYDROCARBONS

VC4487

ETHYL CHLORIDE

SPECIFICATIONS

TEL-OPERATIONS

Appearance	C & C	
Ethyl Chloride	99.2% Min.	
Vinyl Chloride, ppm	100 Max.	
2 MP + VDC, ppm	400 Max.	
Hexane	200 Max.	
Acid No.	10 Max.	
1-2-DCEE, ppm	150 Max.	)
1-1-EDC, ppm	150 Max.	)
1-1-1-TCE + 1-1-2 TCE, ppm	150 Max.	) *
1-2-EDC, ppm	150 Max.	)
Tri, ppm	150 Max.	)
Isobutane + Isopentane, %	0.7 Max.	

*Not more than 800 ppm combined.

November, 1981

VC4488

ETHYL CHLORIDE

SPECIFICATIONS

SALES

Appearance	C & C
Purity	99.7% Min.
Acid, ppm HCl	2 Max.
Aldehyde, ppm	10 Max.
Non-Volatiles, ppm	20 Max.
Specific Gravity °°/4° C.	0.921 - 0.923
Color, APHA	10 Max.
Water, ppm	50 Max.
Boiling Range - C°	12.0 - 13.0

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VC4489

METHYL CHLORIDE

SPECIFICATIONS

Methyl Chloride	99.8% Min.
Acid, ppm	10 Max.
Dimethyl Ether + Methylene Chloride	20 Max.
Acetone, ppm	50 Max.
Ethyl Chloride, ppm	150 Max.
Vinyl Chloride, ppm	100 Max.
Acetylene, ppm	200 Max.
Methanol, ppm	50 Max.
Residue, ppm	100 Max.
Water, ppm	100 Max.
Boiling Rn-C° (5-95)	-24.6 to -23.6 760 mm
Appearance	Colorless

TML-SPECIFICATIONS

Methyl Chloride	96.0% Min.
Dimethyl Ether, ppm	100 Max.
Vinyl Chloride, ppm	4500 Max.
Water, ppm	100 Max.
Acid, ppm	30 Max.

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VC4490

VINYL CHLORIDE

SPECIFICATIONS

Appearance	C & WW
Acetylene, ppm	2 Max.
Acidity, ppm	2 Max.
Acetaldehyde, ppm	5 Max.
Iron, ppm	0.5 Max.
Peroxide, ppm	0.06 Max.
Non-Volatiles, ppm	100 Max.
Water, ppm	100 Max.
Vinyl Acetylene, ppm	2 Max.
Chloroprene, ppm	15 Max.
1-3, Butadiene, ppm	10 Max.
Methyl Chloride, ppm	25 Max.
Ethyl Chloride, ppm	50 Max.
Vinylidene Chloride, ppm	50 Max.
1-1,EDC, ppm	50 Max.
1-2,EDC, ppm	25 Max.
Total Chlorocarbons, ppm	100 Max.
Vinyl Acetylene + 1-3 Butadiene	10 Max.

November, 1981

VC4491

PERCHLORETHYLENE SPECIFICATIONS

GENERAL CLASSIFICATION: CHLORINATED SOLVENT

FORMULA: $CCl_2 = CCl_2$

<u>Grade</u>	<u>Dry Cleaning</u>	<u>Industrial</u>	<u>Neutral</u>	<u>Metal Degreasing</u>
Appearance-----	Clear, free from suspended matter-----			
Odor-----	Characteristic, mildly sweet-----			
Residual Odor	None	Slight	Slight	Slight
Color, APHA	15 max.	15 max.	15 max.	15 max.
Boiling Range at 760 mm Hg IBP-DP, °C	120-122	120-122	120-122	120-122
Specific Gravity at 25/25°C	1.617-1.621	1.617-1.621	1.610-1.619	1.617-1.621
Cloud Point, °C	-5 max.	-5 max.	-5 max.	-5 max.
Free Halogens	None	None	None	None
Acidity (as HCl), wt %	None	None	None	None
Alkalinity (as NaOH), ppm	7 min-20 max.	30 min-50 max.	None	30 min-60 max.
Non-volatile matter, wt%	0.0010 max.	0.0010 max.	0.0010 max.	0.0010 max.
Stability with Copper				
Weight Loss, mg/24 hr	30 max.	-	-	-
Weight Loss, mg/72 hr.	-	-	5 max.	-
Acid Acceptance, wt % as NaOH	-	-	0.10 min.	0.13 min.

Important Notice

Although proper product quality requires that the stabilizer specifications be met, they are not to be used in published literature or revealed to customers.

Confidential Specifications

Stabilizer Content (wt %)

	<u>Dry Cleaning</u>		<u>Industrial</u>		<u>Neutral</u>		<u>Metal Degreasing</u>	
	<u>Min</u>	<u>Max</u>	<u>Min</u>	<u>Max</u>	<u>Min</u>	<u>Max</u>	<u>Min</u>	<u>Max</u>
N-methylmorpholine, wt %	0.004	0.006	0.015	0.025	-----		0.015	0.025
tert-amyl Phenol, wt %	0.0015	0.0025	0.0015	0.0025	0.0015	.0025	0.0015	0.0025
Methyl Pentynol, wt %					0.08 -	.12	-	
Epichlorohydrin, wt %					0.30 -	.40	0.30	0.40

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PERCHLORETHYLENE
PURITY SPECIFICATIONS

Perchloroethylene	99.75% Min.
Light Ends (DCEE, DCE, CHCl_3 , etc.)	200 ppm Max.
Carbon Tetrachloride	50 ppm Max.
Tri	500 ppm Max.
1,1,2 Trichloroethane	200 ppm Max.
Dichlorobutadiene	500 ppm Max.
Monochlorobenzene	1000 ppm Max.
U-Tetrachloroethane	1000 ppm Max.
S-Tetrachloroethane	100 ppm Max.
Total Chlorocarbons	2500 ppm Max.

November, 1981

VC4493

TRICHLORETHYLENE SPECIFICATIONS

Formula: $\text{HCCl} = \text{CCl}_2$

<u>Grade</u>	<u>Metal Degreasing</u>	<u>High Purity</u>	<u>Neutral Degreasing</u>
Appearance	-----Clear, free of suspended matter-----		
Odor	-----Characteristic, mildly sweet-----		
Residual Odor	None	None	None
Color, APHA	15 max.	15 max.	15 max.
Boiling Range at 760 mm Hg IBP-DP°C	86.5-87.9	0.8° range. including 87.0°	86.5-87.9
Specific Gravity at 25/25°C	1.450-1.458	1.460-1.464	1.450-1.458
Cloud Point °C	-10 max.	-10 max.	-10 max.
Free Halogens	None	None	None
Acidity (HCl), wt %	None	None	None
Alkalinity (NaOH), ppm	7 min-20 max	7 min-20 max	None
Acid Acceptance (NaOH), wt %	0.19-0.22	-	0.19-0.22
Non-volatile Matter, wt %	0.001 max.	0.0007 max.	0.0010 max.
Stability with Copper	No discoloration	No discoloration	-
Spot Test (Residual Stain)	No spot	No spot	-
Accelerated Oxidation Acidity (HCl), wt %	0.02 max.	-	-

Important Notice

Although proper product quality requires that the stabilizer specifications be met, they are not to be used in published literature or revealed to customers.

Confidential Specifications

Stabilizer Content (wt %)

	<u>Grade</u>					
	<u>Metal Degreasing</u>		<u>High Purity</u>		<u>Neutral Degreasing</u>	
	<u>Min</u>	<u>Max</u>	<u>Min</u>	<u>Max</u>	<u>Min</u>	<u>Max</u>
Diisobutylene	0.05	0.09	-	-	0.05	0.09
Butylene Oxide	0.18	0.25	-	-	0.18	0.25
Ethyl Acetate	0.03	0.07	-	-	0.03	0.07
N-methylpyrrole	0.015	0.025	-	-	0.015	0.025
Epichlorohydrin	0.20	0.24	-	-	0.20	0.24
Diisopropylamine	0.0025	0.0035	0.0025	0.0035	-	-
para- <u>tert</u> -anil phenol	-	-	-	-	0.0025	0.0035

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VC4494

TRICHLORETHYLENE
PURITY SPECIFICATIONS

Trichlorethylene	99.90% Min.
Light Ends (DCEE, DCE, 1-1-TCE, etc.)	100 ppm Max.
Each Component	50 ppm Max.
Carbon Tetrachloride	500 ppm Max.
Bromochloroethane	500 ppm Max.
1,1,2 TCE	100 ppm Max.
Perchlorethylene	200 ppm Max.
Heavy Ends	50 ppm Max.
Total Impurities	1000 ppm Max.

November, 1981

VC4495

D. I. I.

SPECIFICATIONS

Color	3.0 Max. A.S.T.M.
Acid	0.03% Max. (HCl)
Water	0.05% Max.
Specific Gravity 20°C	0.960

November, 1981

VC4496

LEAD ALKYL

VC4497

LEAD ALKYL AREA

MANUFACTURING SPECIFICATIONS

<u>Sample</u>	<u>Analysis</u>	<u>Specifications</u>
Soap	% Soap	5.00 - 7.00%
Hypo	% Thiosulfate	30% Minimum
Reflux Water	ppm Chromate pH	1000 Minimum 8.3 - 9.0
Pot Alloy	Total Sodium (Alkalinity)	10.17% Target Set by Alloy Supervisor
Still Sludge	% TEL	<0.20%
Still Water	% Na (Alkalinity)	<4.0%
Bldg. Feed Tanks	Purity - Sp. Gr. % Acetone Water Content	99.0% Minimum 0.050 - 0.100 <150 ppm $\equiv$ <-30° C
Rectified Tanks	Purity - Sp. Gr. % Acetone Water Content	99.0% Minimum 0.050 - 0.100 <150 ppm $\equiv$ <-30° C
Takeoff	Purity - Sp. Gr. Water Content	96.0% Minimum <150 ppm $\equiv$ <-30° C
Column Feed	Purity - Sp. Gr. Water Content	92.5% Minimum <-30° C
Column Reflux	Purity - Sp. Gr. Water Content	18 - 22% <-30° C
EtCl - TEL Manufacture (Same as Bldg Feed Tanks)	Purity - Sp. Gr. % Acetone Water Content	99.0% Minimum 0.050 - 0.100 <150 ppm $\equiv$ <-30° C
Methyl Chloride	Purity Acid Water Vinyl Chloride Dimethyl Ether	96.0% Minimum 30 ppm Maximum 100 ppm Maximum 4500 ppm Maximum 100 ppm Maximum
Lead	Bismuth Copper As/Sb	0.05% Maximum 0.05% Maximum 0.02% Maximum

October, 1981

VC4498

LEAD ALKYL AREA

BLENDER RAW MATERIAL SPECIFICATIONS

<u>Sample</u>	<u>Analysis</u>	<u>Specifications</u>
EDC	Sp. Gr. Acid No.	1.245 - 1.260 @ 20° C 10 Max. $\approx$ 40 ppm
EDB	Sp. Gr. Acid No.	2.170 - 2.184 @ 20° C 0.5 Max. $\approx$ 2 ppm
Acetone	Sp. Gr. % Acid % H ₂ O	0.791 - 0.793 @ 20° C 0.004% Max. $\approx$ 40 ppm 0.5% Max. $\approx$ 5000 ppm
Toluene	Sp. Gr. % H ₂ O B.P.	0.867 ⁺ .005 @ 20° C 300 ppm Max. 110° C -2
Kerosene	Sp. Gr.	0.810 ⁺ 0.005 @ 20° C
DTBP (65% Solution)	Sp. Gr.	0.912 ⁺ 0.005 @ 20° C
IDP	Sp. Gr.	1.173 ⁺ 0.005 @ 20° C
Ak33 or MMT (97.5%)	Sp. Gr.	1.360 ⁺ 0.005 @ 20° C
AN733	Sp. Gr.	0.941 ⁺ 0.005 @ 20° C
TEL Washhouse Fluid 99.6% Pure	Sp. Gr.	1.650 $\pm$ 0.005 @ 20° C
TML (80/20)	Sp. Gr.	1.586 ⁺ 0.005 @ 20° C
Red Dye	No Analysis	
Orange Dye	No Analysis	
Rework Mix	% TEL Sp. Gr.	No Specs No Specs

October, 1981

VC4499

LEAD ALKYL AREA

MISCELLANEOUS SPECIFICATIONS

<u>Sample</u>	<u>Analysis</u>	<u>Specifications</u>
Methylene Chloride (Refrigeration)	% Water (K.F.)	0.1% Maximum
EtCl - Shipments from Storage - TEL	Purity - VPC	99.2% Minimum
	Acid No.	10.0 Maximum
	Vinyl Chloride	100 ppm Maximum
	2MP & Vinylidene Cl	400 ppm Maximum
	Hexane	200 ppm Maximum
	Other C.H.	150 ppm Maximum
	Total Impurities (above)	500 ppm Maximum
MeCl Shipments	Purity - VPC	96.0% Minimum
	Acid	30 ppm Maximum
	Water	100 ppm Maximum
	Vinyl Chloride	4500 ppm Maximum
	Dimethyl Ether	100 ppm Maximum
Dowtherm	Engler Residue	.5% Maximum
Sodium Containers (Greek Tanks)	Water Content	4 mg/Cu. Ft. Maximum

October, 1981

VC4500

SODIUM

VC4501

SODIUM MANUFACTURING SPECIFICATIONS

Sample	Analysis	Specification
Raw Brine	% CaSO_4 pH Specific Gravity @ 25°C Color	0.215% Maximum 7.0 - 8.0 1.185 Minimum Clear to Greenish
S-Tanks	% BaCl_2 % CaSO_4 pH Specific Gravity @25°C Appearance	0.005 - 0.020% Nil 7.0 - 8.0 1.185 Minimum No. Spec.-Typically clear to greenish
T-Tanks	% BaCl_2 % CaSO_4 pH Specific Gravity @25°C	Observed Qualitatively At Present - Light, Medium or Heavy Nil 7.0 - 8.0 1.185 Minimum
Sodium	% Ca	0.045% Maximum
Tailpipe Water	% NaCl	0.05% + C.S.W. % Maximum
Condenser Supply Water	% NaCl	0.05% Maximum
Condensate Water	% NaCl	0.05% Maximum
Nash Pump Acid	% H_2SO_4	94.0% Minimum
Weak Sulfuric	% H_2SO_4	80.0 - 85.0%
Strong Sulfuric (Incoming)	% H_2SO_4	97.5% Minimum
Refined Salt	% Water % Fe_2O_3 % Na_2SO_4	0.10% Maximum 0.002% Maximum Nil
Air	Water Content	1.0 mg/cu. ft. Maximum
Nitrogen	Water Content	1.0 mg/cu. ft. Maximum
Liquid Chlorine	ppm NCl_3	0.5 ppm Maximum
Sodium Vacuum Containers	Water Content	4.0 mg/cu. ft. Maximum

November, 1981

VC4502

<u>Sample</u>	<u>Analysis</u>	<u>Specification</u>
Air for Drying Chlorine Production Equipment	Water Content	75.0 mg/cu. ft. Maximum
Atmospheric Tests	% Oxygen	19.5% Minimum
	% Combustibles	20.0% LEL Maximum
	ppm Chlorine	1 ppm Maximum

November, 1981

VC4503



ATMOSPHERIC TESTS

<u>Environment to be Sampled</u>	<u>Required Analyses</u>	<u>Specifications</u>
1. Enclosed Area Entry 2. No Air Contamination 3. No Flame to be Used	1. Oxygen Content	1. 19.5% Minimum Less than 19.5% O ₂ fresh air supply required.
1. Enclosed Area Entry 2. Flame to be Used 3. No Air Contamination	1. Oxygen Content	1. 19.5% Minimum Less than 19.5% O ₂ fresh air supply required.
	2. % Combustibles	2. Less than 20% LEL.
1. Enclosed Area Entry 2. Lead in Air Possible 3. No Flame to be Used	1. Oxygen Content	1. 19.5% Minimum Less than 19.5% O ₂ fresh air supply required.
	2. Lead-in-Air Concentration	2 microgram/ft ³ - no respiratory equipment required. Between 3-14 microgram/ft ³ - double cartridge respirator required. Between 15-50 microgram/ft ³ - fresh air supplied mask required. ~1 Above 50 microgram/ ft ³ - Special permission and cleanup required.
1. Enclosed Area Entry 2. Flame to be Used 3. Lead-in-Air Possible	1. Oxygen Content	1. 19.5% Minimum Less than 19.5% O ₂ fresh air supply required.
	2. % Combustibles	2. Less than 20% LEL.
	3. Lead-in-Air Test	3. 2 microgram/ft ³ - no respiratory equipment required. Between 3-14 microgram/ft ³ - double cartridge respirator required. Between 15-50 microgram/ft ³ -

ATMOSPHERIC TESTS (continued)

<u>Environment to be Sampled</u>	<u>Required Analyses</u>	<u>Specifications</u>
		fresh air supplied mask required. Above 50 microgram/ ft ³ - Special permission and cleanup requir d.
1. Enclosed Area Entry 2. Cl ₂ -in-Air Possible	1. Oxygen Content	1. 19.5% Minimum Less than 19.5% O ₂ fresh air supply required.
	2. Chlorine Concentration	2. Less than 1 ppm without protection.
1. Enclosed Area Entry 2. Vinyl Chloride in Air	1. Oxygen Content	1. 19.5% Minimum Less than 19.5% O ₂ fresh air supply required.
	2. Vinyl Chloride Concentration	2. Less than 1 ppm without protection.
1. Flame to be Used in Open Area	1. % Combustibles	1. Less than 20% LEL.
1. Enclosed Area Entry 2. Carbon Monoxide Possible	1. Oxygen Content	1. 19.5% Minimum Less than 19.5% O ₂ fresh air supply required.
	2. CO Concentration	2. Less than 50 ppm for entry without protection.

May, 1982

VC4506