

PPG INDUSTRIES, Inc.

STANDARD VCM SPECIFICATION

Appearance	Clear
Color	Colorless
Acidity (as HCl) ppm, max.	2
Iron (as Fe) ppm, max.	0.3*
Nonvolatile ppm, max.	50
Acetaldehyde ppm, max.	0.4
Acetylene ppm, max.	2
Water ppm, max.	100
Peroxides (as H ₂ O ₂) ppm, max.	0.06
1,3 Butadiene ppm, max.	10
Ethyl Chloride ppm, max.	100
Vinyl Acetylene ppm, max.	10
Ethylene Dichloride ppm, max.	10
Methyl Chloride ppm, max.	100
Oxygen in Vapor Phase ppm, max.	1000

* No standard Interplant Analytical Method available at this time.

A P P R O V E D
October 23, 1975

SL 090427

PHYSICAL PROPERTIES AND CONSTANTS OF PURE VINYL CHLORIDE

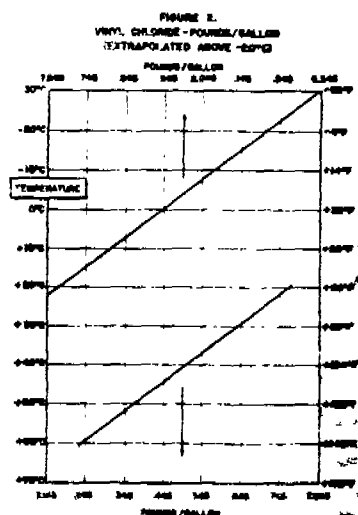
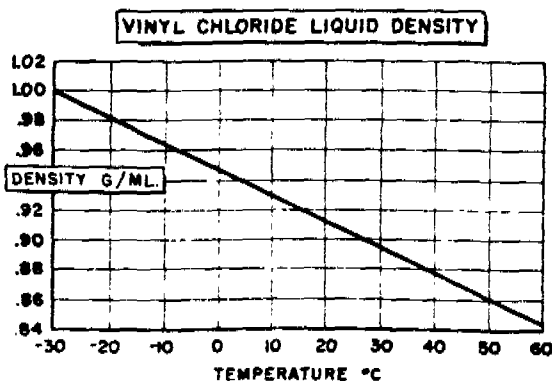
The following table contains the latest information available on the properties of vinyl chloride. Some of these properties were determined by Dow while others are calculations, estimations or determinations from the most reliable sources available.

Property	Ref.*	Temp. °C	
1. Molecular Weight	(1)		62.501
2. Boiling Point at 760 mm	(2)	-13.80	
3. Melting Point	(3)	-153.69	
4. Odor, uninhibited inhibited	(4)		Faint, sweet odor Faint-phenolic-odor due to inhibitor
5. Color	(4)		Colorless
6. Flash point		Gas at room temperature	Will form flammable mixtures at all normal ambient temperatures
7. Autoignition Temperature	(4) (14)	472.22 (882°F)	
8. Flammable Limits, Vol. % in air	(5)	Room temperature	3.6-26.4
9. Liquid Density, g/ml	(6) (3)	100 25 -20 -25 -30	0.746 0.9013 0.9834 0.9918 0.9999

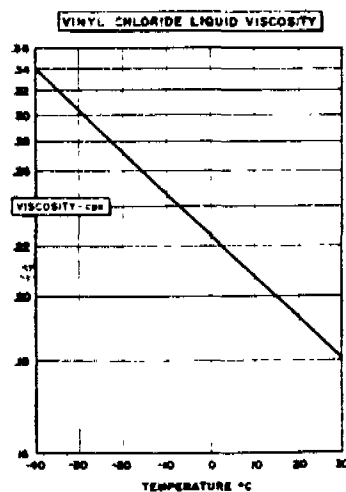
INCLUDE?
PLOT
PPG ADT

EXTRAPOLATE
33

ON
PPG
GRAPH



Property	Ref.*	Temp. °C	
10. Density Change with Temperature g/ml/°C	(3)	(between -30 & -20)	0.00164 (approx.)
11. Liquid Viscosity, cps	(3)	100 25 -10 -20 -30 -40	0.100 0.185 0.248 0.274 0.303 0.340
12. Vapor Viscosity, cps	(7)	100 25	0.0138 0.0108

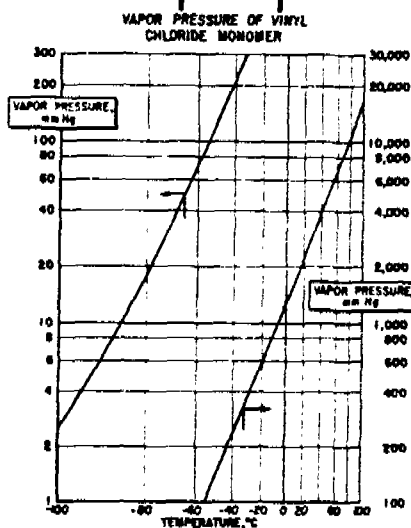


13. Surface Tension, dynes/cm	(3)	100 25	5.4 16.0
14. Refractive Index, D line	(8)	25	1.3642

*References see page 19.

Property	Ref.*	Temp. °C	
15. Vapor Pressure, mm Hg	(2)	100	16,617
		25	2,943
		0	1,293
		-25	470
		-50	130
		-75	24.4
		-100	2.5
16. Change in Boiling Point with Pressure dt/dP °C/mm Hg	(3)	25	0.01355
		-13.37	0.03423

~~*~~
 ↑ on
 ↓ PPL Graph



17. Heat Capacity (Liquid), Cp, cal./mole/deg.	(3)	100	26.25
		25	20.56
18. Heat Capacity (Vapor), Cp, cal./mole/deg.	(9)	100	14.88
		25	12.82
19. Latent Heat of Vaporization ▲ Hv, cal/mole	(3)	100	3.310
		25	4.710
		-13.8	5.250

~~*~~

~~*~~

~~*~~

Property	Ref.*	Temp. °C	
20 Latent Heat of Fusion, ▲ Hm, cal/mole	(3)		1.172
21. Heat of Formation ▲ Hf, 298°K, kcal/mole	(3) (10)		8.480
22. Free Energy of Formation, ▲ Ff 298°K, kcal/mole	(3)		12.386
23 Heat of Polymerization, ▲ Hp, kcal/mole	(3)		-25.3 ± 0.5
24. Critical Temperature, t., °C	(11)		147
25. Critical Pressure, P., atmospheres	(11)		56
26. Critical Volume, v., cc/mole	(11)		179
27. Critical Compressibility (PV/RT), Z	(11)		0.29
28 Volumetric Shrinkage upon Polymerization, approximate, %	(3)		35
29. Dielectric Constant at Frequency of 10 ⁵ Hz	(3)	17.2 -21	6.26 7.05
30. Dissipation Factor at Frequency of 10 ⁵ Hz	(3)	-21	0.0011
31. Solubility — Soluble in CCl ₄ , ether, ethanol and most organic solvents		17.2	
32. Solubility of water in Vinyl Chloride, %	(1)	25	0.11
33. Solubility of O ₂ from air in Vinyl Chloride at 60 psig, ppm	(12)	23.8 (75°F)	210 ± 25
34 Thermal Conductivity (Vapor), K, Cal/(secs. cm ² (C/cm))	(13)	0 10 20 30	2.2 x 10 ⁻⁴ 2.364 x 10 ⁻⁴ 2.523 x 10 ⁻⁴ 2.686 x 10 ⁻⁴

✱
 ✱
 ✱
 ✱
 ← does NOT agree with PPL
 ✱
 ✱
 ✱
 ✱
 ✱
 ✱
 ✱

* References see page 19