

HAZARDOUS CHEMICALS EXPOSURE TASK FORCE

PHYSICAL PROPERTY DATA SHEET
Reference noted in brackets.

Prepared by J. M. Schroy

Date July 7, 1978

CHEMICAL NAME Vinyl Chloride Monomer

CHEMICAL FORMULA CH₂CHCl

MOLECULAR WEIGHT 62.499

(IU)

SPECIFIC HEAT, Cal/(°K-gmol)

CRITICAL CONSTANTS

Liquid @ 25°C

20.56

(LE)

P_c = Pressure, ATM.

56

(LE)

Vapor @ 25°C

12.84

(SWS)

T_c = Temperature, °K

431.55

(LE)

HEAT OF VAPORIZATION

Z_c = Compressibility

0.2831

(Calc)

@NBP, kcal/gmol

5.250

(LE)

V_c = Volume, cm³/gmol

179

(LE)

HEAT OF FUSION

VAPOR PRESSURE

kcal/gmol

1.133

(DR)

mm Hg @ 25°C 2936.6

HEAT OF COMBUSTION

ANTOINE CONSTANTS (Note 1)

Liquid @ 25°C, kcal/gmol

()

Units log₁₀, mm Hg & °Clog_e, P*/P_c, & °F

Gas @ 25°C, kcal/gmol

()

A 6.86108

5.1395504

HEAT OF FORMATION

B 892.757

3700.1681

Liquid @ 25°C, kcal/gmol

()

C 238.099

396.5782

Gas @ 25°C, kcal/gmol 8.40

(SWS)

(MSS)

(Calc)

FREE ENERGY OF FORMATION

NORMAL BOILING POINT (N.B.P.) @ 1 ATM.

Liquid @25° C, kcal/gmol

()

°R 466.83

(LE)

Gas @ 25°C, kcal/gmol 12.31

(SWS)

°C -13.8

(LE)

ENTROPY S @ 1 ATM

FLASH POINT

Liquid @25°C, Cal/(°C - gmol)

()

Open Cup, °F -108

(LE)

Gas @25°C, Cal/(°C - gmol) 63.08

(SWS)

AUTOIGNITION TEMPERATURE

In Air, °F 882

(MCA)

SPECIFIC GRAVITY vs. H₂O @ 4°C

FREEZING POINT

@ 20° C

0.98343

(DR)

In Air at 1 ATM, °C -157.69

(LE)

@ 25° C

0.9013

(LE)

DENSITY @ 70°F

EXPLOSIVE LIMITS @ 1 ATM

Liquid @ lb/Ft³ 56.71

(MCA)

Lower Limit, Volume % 3.6

(MCA)

lb/gal

()

Upper Limit, Volume % 26.4

(MCA)

Vapor Ref. to Air 2.15

(VE)

SOLUBILITY, Weight %

VISCOSITY, Absolute Centipoise

t=°F In Water (HL)

Water In (LE)

t=°C

Liquid (LE)

Vapor (LE)

0.2 @ 1 ATM 0.7488

-40

0.34

25 @ 1 ATM 0.2697

0.11

-30

0.303

50 @ 1 ATM 0.1276

-20

0.274

20 @ 2.542 ATM 0.68

25

0.185

0.0108

25 @ 3.06 ATM 0.711

100

0.100

0.0138

ACTIVITY COEFFICIENTS

At infinite Dilution in water

(HL)

REFRACTIVE INDEX, D Line

t > 0°C to t < 75°C (T=°K, P = ATM)

-10°C

1.4046

(DR)

25°C

1.3642

(LE)

$$\gamma^{\infty} = \left\{ \frac{690}{1 + 0.1341} \right\} \left\{ p^{(2665/e^{0.329T})} \right\}$$

SURFACE TENSION, DYNES/CM

@ 25 °C 16.0

(LE)

@ 100 °C 5.4

(LE)

ENVIRONMENTAL FACTORS

THERMAL CONDUCTIVITY, Cal/(sec-cm-°C)

Oxygen Demand - None reported, evaporates

Liquid

()

from water on standing. 90% removal

Vapor

()

in 96 minutes.

(VE)

SCHMIDT NUMBER

Dimensionless

()

ODOR THRESHOLD, PPM (VOLUME)

EVAPORATION FROM POOL, lb/hr/ft² @ 100 fpm

Preception 4000

(VE)

Pure Liquid - Daylight 7.169

(E1838)

Recognition 25000

(VE)

Pure Liquid - Dark 5.635

(E1838)

With Water - Daylight 0.177

(E1838)

With Water - Dark 0.170

(E1838)

Notes:

1. log_a (P*) = A - B/(t+C)

P* = Vapor Pressure

a = Base

CBY 2613687

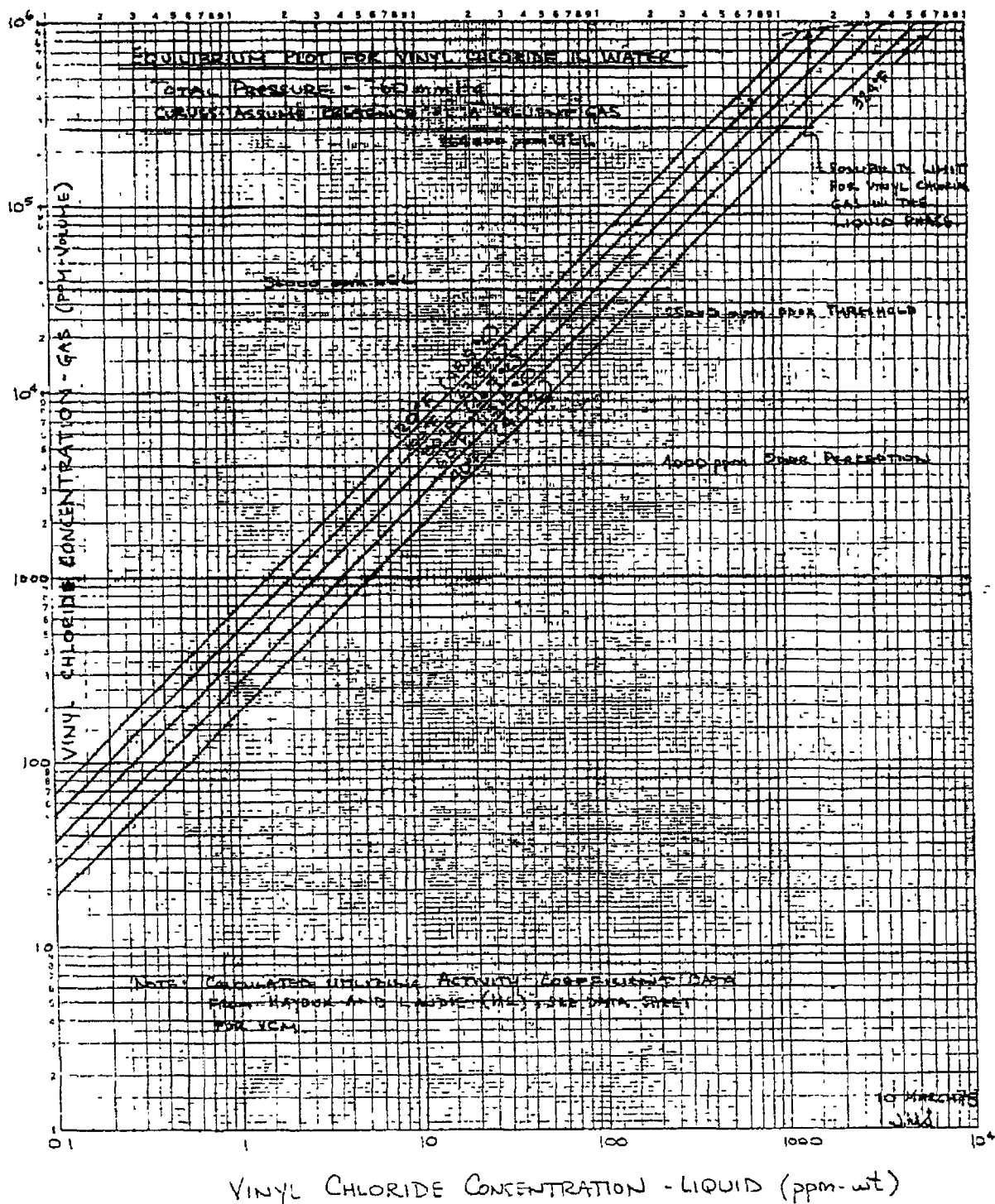
RSV0033808

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- MO Monsanto Corporate Engineering Physical Properties (CEPP) File, CED Central File.
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- ST Stull, D. R., Industrial & Engineering Chemistry 39, 1947, pp 517-550.
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- Calc = Calculated

CBY 2613688

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CBY 2613689