hooker

NIAGARA FALLS, NEW YORK 14302, PHONE (716) 285-6655

May 9, 1967

Diamond Alkali Company
Newark Plant
80 Lister Avenue
Newark, New Jersey 07105

Attention: Mr. F. Gordon Steward
Technical Superintendent

Dear MR. STEWARD

Enclosed is a copy of our analytical method for tetrachlorobenzene utilizing Infrared.

Our specification for tetrachlorobenzene follows:

1. Freeze point 137.0°C minimum

2. 97% minimum assay 1, 2, 4, 5, Tetrachlorobenzene by Infrared

A typical isomer distribution is listed below:

Sample	I. R.
Monochlorobenzene %	0.1
1, 2, 4 Trichlorobenzene %	2.5
1, 2, 3, 4 Tetrachlorobenzene %	0.3
1, 2, 4, 5 Tetrachlorobenzene %	97.1

Infrared assay of 1, 2, 4, 5 is by difference.

Should you have further questions regarding this material after examination of the analytical procedure and tables, please feel free to call us.

Sincerely yours

DS 00001570 HOOKER CHEMICAL COMPANY

J. F. Lemen
Technical Service

mmd

1, 2, 4, 5- TETRACHLOROBENZENE - DATA SHEET NO. 761-A

HOOKER SPECIFICATIONS

Description	White flakes
Color (molten in 1" test tube, ASTM Colorimeter)	1 Maximum
Clarity (insolubles in benzene)	0.05% Maximum
Melting Point	137.5°C Minimum

DESCRIPTION

Hooker 1, 2, 4, -5Tetrachlorobenzene is a white crystalline solid of almost no odor. It is packaged in flake form.

Formula	$C_6H_2Cl_4$
Molecular Weight	215.9

TYPICAL PHYSICAL PROPERTIES

Melting Point Range		137.5°C to 140°C
Boiling Range		240°C to 246°C
Chlorine Content		65.7%
Acidity		None
Vapor Pressure (1) at 25°C		Less than 0.1 mm
Vapor Pressure of liquid at	°C	mm
	150	52
	200	255
	240	730
Latent Heat of Vaporization (2) at 240°C		47 cal/gm
Volatility (3) at 25°C		0.8 mg/day/cm ^{2}
Specific Heat (4) of solid at	-172°C	0.096
	-107	0.129
	- 72	0.149
	- 27	0.183
	+ 27	0.224
	+ 63	0.256

DS0001571

TYPICAL PHYSICAL PROPERTIES (Continued)

Solubility	°C	gms/100 gms solvent
Acetone	24.5	3.5
	29.5	4.5
Benzene	26	13.3
	31	16.2
Carbon Tetrachloride	25.5	6.0
	36.5	7.4
Diethyl Ether	24	6.5
	30	8.4
Methanol	38.5	1.5
	47	1.9
Monochlorobenzene	25.5	11.8
	32.5	14.7
Petroleum Ether	27.5	4.6
	30.5	5.1
Solvesso No. 2	22	12.5
	27	14.7
Water		Insoluble

Notes:

(1) By extrapolation of data obtained at higher temperatures.
(2) Calculated from vapor pressure values.
(3) Tests made on a smooth surfaced casting.
(4) Literature data.

APPLICATIONS and REACTIONS

1. Intermediate: as a starting point in making 2, 4, 5-trichlorophenol; 2, 4, 5-trichlorophenoxyacetic acid (1); in prepartation of various azo dyes (2); reaction with NaOMe yields 2, 4, 5-$Cl_3C_6H_2OMe$ (3); nitration yields 1, 4-dinitro 2, 3, 5, 6-tetrachlorobenzene (4); photochemical chlorination gives chiefly 1, 2, 3, 3', 4, 4', 5, 6, 6-enneachloro-1-cyclohexene (5); In 1, 2, 4, 5-tetrachloro benzene all four chlorines are equivalent so that in replacing one chlorine with another group no isomers are obtained.

   Notes: from Chem. Abstracts (1) 17 1482 (1923). (2) 37 5035 and 6651 (1943). (3) 15 1705 (1921). (4) 19 3482 (1925). (5) 30 7102.

2. Insecticide: 1, 2, 4, 5-tetrachlorobenzene shows slight insecticidal activity and its nitro derivative has some value as a knockdown agent. A possible application might be as a slightly active diluent in dusting powder formulations.

3. Impregnant: for fire and moisture resistance, electrical insulation, etc. 1, 2, 4, 5-tetrachlorobenzene has interesting possibilities for imparting temporary protection in packaging, etc., as an ingredient of waxes and resins. The addition of 13% 1, 2, 4, 5-tetrachlorobenzene to chloropropane wax of 140°C melting point (DS Control Sample) yields a white, opaque, waxy eutectic of a fine, soap-like structure which melts sharply at about 53°C (127°F).