To: Mr. F.G. Steward

FROM: J.J. Lusardi

Re: TCP Purification Jan, 1967

Date: Feb. 7, 1967

A. Residence time required to remove impurities:

material	before	after 30 sec	% removed
(1) 2,3,7,9- TCDB-p-Dioxin	< 1 ppm	< 1 ppm	meaningless
most active RPI (2) 2,3,7,8- TCDB-p-Dioxin	19.7 ppm	< 1 ppm	100%
(3) 2,3,7- TC-8-MeO-DB-p-Dioxin / 2,2',3,3',5-PC-5'MeO-DPO	45.1 ppm	16.0 ppm	64.5%
(4) unknown (p-dioxin related)	10.9 ppm	5.7 ppm	47.8%
(5) 2,4,5- Trichloroanisole	.20%	.12%	40%
(6) unknown (anisole-related)	.25%	.20%	20%
(7) 1,5-Dimethoxy-2,4-Dichlorobenzene	.41%	.31%	24.5%

The above amounts of impurities were removed after a 30 second treatment with 1gm activated Carbon powder per 100 gms 100% TCP. Subsequent samples (1, 2, 5, 10, 20, 30 minutes treatment) showed no more adsorption of impurities than the 30 second treatment.

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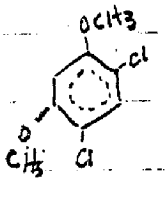
B. Saturation levels of various impurities in activated carbon.

TCP Sodium Salt was passed through an activated carbon tower at the rate of 50 ml./min. The residence time in the tower was calculated to be 1.5 minutes. The attached graphs show the per-cent impurity removed as a function of time. Since there was 112 grams of carbon in the tower, integration of the various normalized curves would yield saturation points of the various impurities. However, this approach is only valid for curves that return to the time axis (ie. 0% removed). Since we did not saturate the carbon with 2,3,7,8-TCDB-p-Dioxin (most active RPI) we did not find out what we intended.

Graphical integration of the curves of saturated impurities yields the following saturation points:



2,4-Dichloro-1,5-Di Methoxy Benzene .00363 gm/gm carbon

Anisole related unknown .00363 gm/gm carbon

2,4,5-Trichloroanisole .00615 gm/gm carbon

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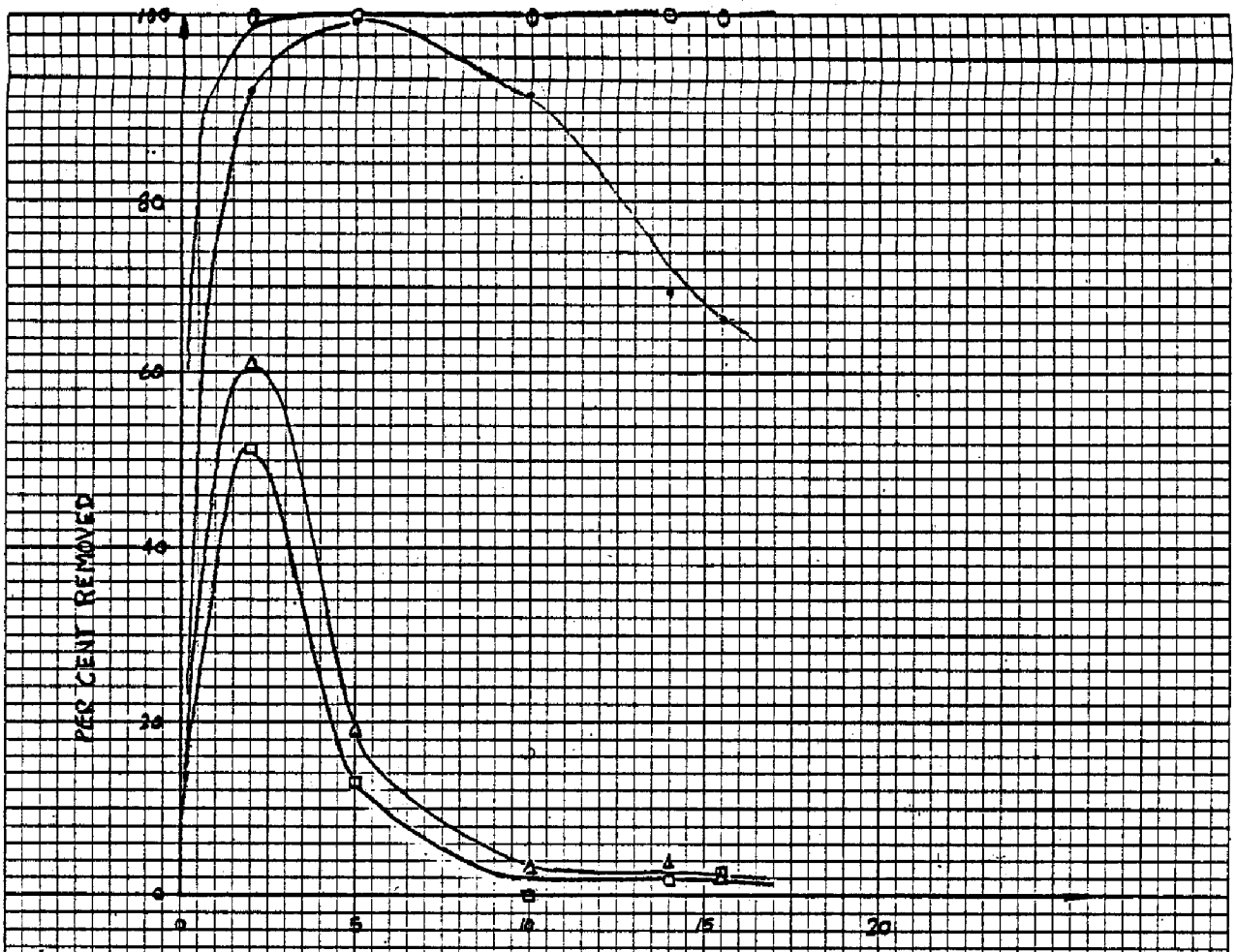
cc FRC



1. RESIDENCE TIME = 1.5 MIN.
2. FLOW RATE = 50 ML./MIN.
3. TCP STRENGTH = 0.142 WT. FRAC.
4. CARBON BED WT. = 112 GRAMS ACT. CARBON TYPE 3 LXC SIZE 8/16 MESH
5. VOID VOLUME = 75 CC.

▲ 2,3,7,8 TCDB-p-D
○ 2,3,7,9 TCDB-p-D
△ 2,2',4,4',5-PC-5'-MeO-DPO AND 2,3,7-TC-8-MeO-DB-p-D
□ UNIDENTIFIED COMPOUND

TCP TREATMENT IN A FIXED BED WITH ACTIVATED CARBON GRANULES

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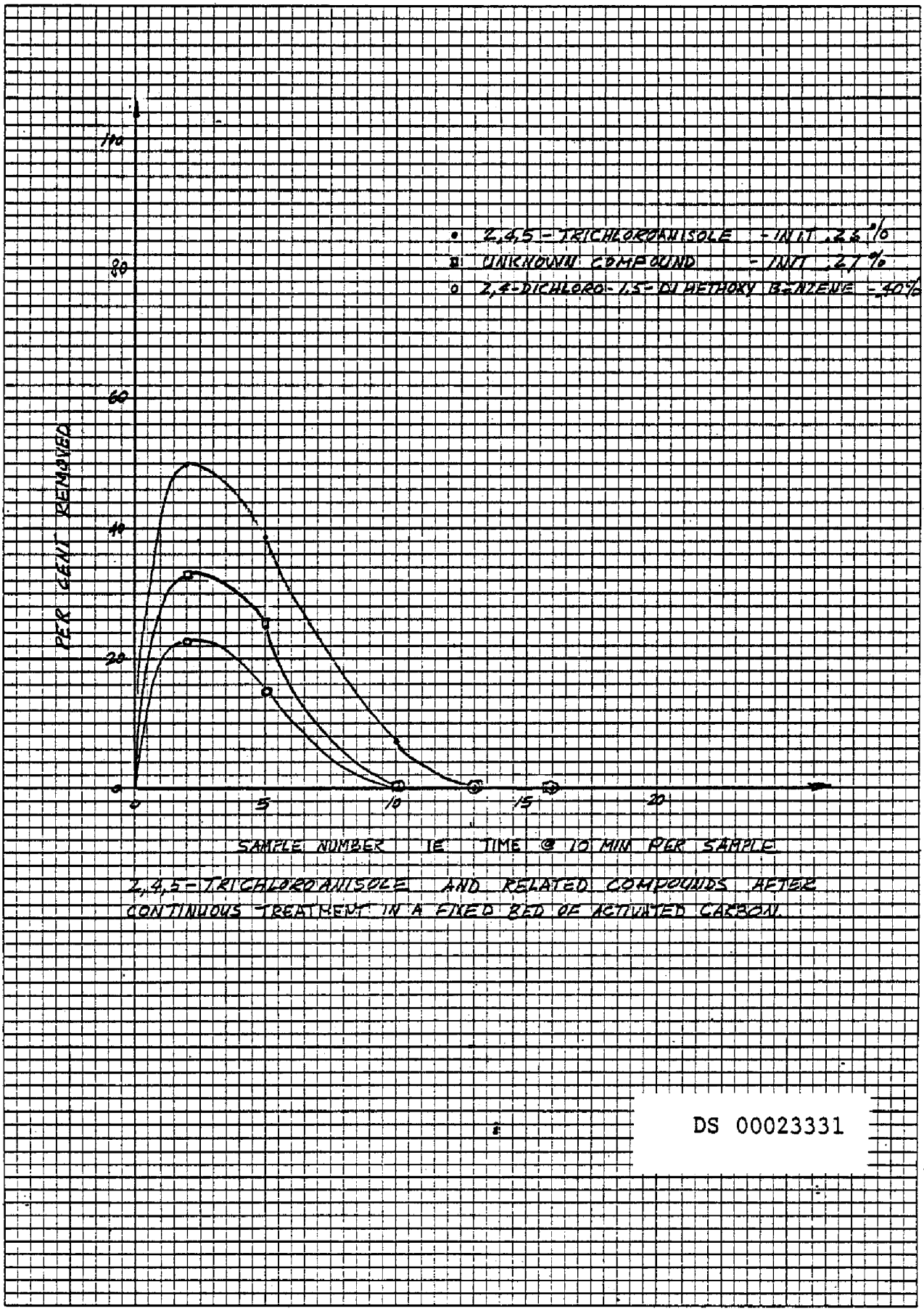

2,4,5-TRICHLOROANISOLE AND RELATED COMPOUNDS AFTER CONTINUOUS TREATMENT IN A FIXED BED OF ACTIVATED CARBON.

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