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ANALYTICAL DIVISION
RESEARCH DIRECTORATE

2 May 1986

ANALYSIS/EVALUATION OF TAN POWDER

A shipment designated 10027C(6), containing 22 samples, was received by the Analytical Division 5 April 1985 from FSTC. One of the samples, designated 10027C(6)-13, identified with CB 850111-007XC, consisted of approximately two pounds of tan powder contained in an open-plastic-bag [redacted] Information indicated a major portion of the sample had been spilled on the ground, then returned (with ground contamination) to the original plastic bag. It was suspected to be CS.

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A vapor sample withdrawn from within the plastic bag was subjected to analysis by gas chromatography/mass spectrometry (GC/MS). A portion of the powder was extracted with acetone to separate the CS. The solvent insolubles were analyzed by infrared spectroscopy. The solubles were stripped of solvent, then subjected to thermal characterization. Portions of the original powder and residue from the solvent solubles were analyzed by ultraviolet spectroscopy (UV).

The GC/MS spectra of the vapors associated with the powder identified the presence of traces of chlorobenzaldehyde (a CS intermediate) and an aliphatic hydrocarbon. Solvent insolubles represented approximately 5% and were identified primarily as a silica typically used as an anticlumping agent, contaminated with small quantities of soil. Thermal characterization of the solvent solubles agreed closely with those of high purity CS, the melting point was 93.2°C, compared to 93° to 95°C cited in literature. UV analysis of the powder confirmed a high purity of 97% CS (o-chlorobenzylmalononitrile).

Conclusion:

The sample consisted of high purity CS in a formulation, with a silica anticlumping agent, similar to that of CS-2. It is possible that the material is of U.S. origin.

Classified by: CIA
Declassify: OADR

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