

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

FEBRUARY 6, 1995

TO: File for Mineral Spirits (64475-85-0)
FROM: Marco Bianchi
SUBJECT: Initial Threshold Screening Level

The initial threshold screening level (ITSL) for mineral spirits is $3500 \mu\text{g}/\text{m}^3$ based on an 8 hour averaging time.

The following references or databases were searched to identify data to determine the ITSL: IRIS, HEAST, NTP Management Status Report, RTECS, EPB-CCD, EPB library, CAS-online, NLM-online, IARC, NIOSH Pocket Guide, ACGIH Guide, and NIOSH criteria document.

A complete literature search was conducted for mineral spirits, but only limited information was available. A NIOSH document (1977), listed an REL of $350 \text{ mg}/\text{m}^3$ for refined petroleum solvents. This document established an REL for various refined fractions and described those fractions (petroleum ether, rubber solvent, VM&P naphtha, mineral spirits, and stoddard solvent) as having hydrocarbon chain lengths of C5-C12, boiling point range of $30\text{-}210\text{C}^0$, and a composition of less than 20% aromatic hydrocarbons.

Mineral spirits is a refined petroleum solvent with a boiling range of $150\text{-}200 \text{C}^0$. A typical chemical composition for mineral spirits would be: 80-86% saturated hydrocarbons, 1% olefins, and 13-19% aromatics. These solvents are clear, colorless liquids with a "pleasant, sweetish odor," and are very slightly soluble in water. They are produced from straight-run naphtha derived from a paraffin-base or mixed-base crude. Mineral spirits are used as a general-purpose thinner, a solvent for paint and varnish industries, and a dry-cleaning agent. These compounds have also been termed white spirits, petroleum spirits, and light petrol. Stoddard solvent is considered by some investigators to be synonymous with mineral spirits.

An ITSL of $3500 \text{ ug}/\text{m}^3$ has already been established for both VM&P naphtha and stoddard solvent. Because mineral spirits shares the same characteristics as these chemicals (hydrocarbon chain length, boiling point range, and aromatic composition), it seems appropriate to set an ITSL for this compound at $3500 \text{ ug}/\text{m}^3$.

The ITSL for mineral spirits = $3500 \mu\text{g}/\text{m}^3$ based on 8 hr. averaging.

References:

NIOSH. 1977. Criteria for a recommended standard occupational exposure to refined petroleum solvents, NIOSH 77-192.

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