

# MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

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## INTEROFFICE COMMUNICATION

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July 15, 1996

TO: Sodium Hydrogen Sulfite File (CAS # 7631-90-5)

FROM: Gary Butterfield, Toxics Unit

SUBJECT: ITSL for Sodium Hydrogen Sulfite

Sodium hydrogen sulfite is also commonly known as sodium bisulfite.

Occupational exposure levels, or OEL, of 5 mg/m<sup>3</sup> is available from NIOSH and ACGIH. These occupational exposure limits were developed to be protective of irritant effects on skin, eyes and mucous membranes.

A February 29, 1996, CAS on-line literature search found only a few toxicity studies of sodium bisulfite available. Tuch et al (1990), in a series of four articles, report the findings from a study where a group of dogs were exposed to 1 mg/m<sup>3</sup> for nine months. These articles associate sodium bisulfite exposure with histopathology changes in the upper respiratory tract, pathobiochemical changes of the respiratory tract, and reduced particle clearance abilities of the respiratory tract. The few animals used in this study, as well as there only being one dose level tested with a no effect dose level not identified, makes this study of limited use for calculating a screening level.

An oral study of three generation rat reproductive identified an NOAEL of 156 mg/kg (Til et al 1972). However, the respiratory tract changes reported from Tuch's inhalation studies, make use of oral data upon which to base the screening level a questionable process.

It is currently believed that the best available basis for establishing an ITSL is the OEL. An ITSL based on the 1% of the OEL comes out to be 50 µg/m<sup>3</sup> with 8 hour averaging.

### REFERENCES:

ACGIH. 1991. Documentation of threshold limit values and biological exposure indices, 6th edition.

NIOSH. 1994. Pocket guide to chemical hazards.

Til et al. 1972. The toxicity of sulphite. I. Long term feeding and multigeneration studies in rats. *Fd Cosmet Toxicol* 10:291-310.

Tuch et al. 1990. Long term exposure of dogs to a sulphite aerosol: I. Rational and design parameters. *J Aerosol Sci* 21:s471-4.

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