

Using HPV Data to Set Occupational Exposure Limits

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Agricultural Implement Workers
of America
(UAW)**

Method Followed

- **Select All GLP Inhalation Studies**
- **Exclude those for which concentration value is missing**
- **Exclude Lethality Studies**
- **Prioritize Chemicals for OELs based on Toxicity**

Lowest LOAELs / NOAELs

Ninth Collective Chemical Index Name	\Endpoint Name	Concentration Result Type	Concentration Value	Concentration Units	TLV-TWA	Units	Factor
1,3,5-Triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-tris(oxiranylmethyl)-	REPRODUCTIVE TOXICITY	LOAEL	8.00	mg/m3	0.05	mg/m3	160.0
Benzenamine, 4-nitro-	REPEATED-DOSE TOXICITY	LOAEL	10.00	mg/m3	3	mg/m3	3.33
Phenol, 4-nitro-	REPEATED-DOSE TOXICITY	NOAEL	5.00	mg/m3	None		
Benzenamine, 2-nitro-	REPEATED-DOSE TOXICITY	NOAEL	9.80	mg/m3	3	mg/m3	3.27
Methyl 4-Formyl benzoate	DEVELOPMENTAL TOXICITY / TERA-TOGENICITY	NOAEL	10.00	mg/m3	None		

4-nitro phenol

Occupational exposure... may occur through inhalation and dermal contact with this compound at workplaces where 4-nitrophenol is produced or used or where the pesticide parathion is used.

**Hazardous Substances Data Bank
(<http://toxnet.nlm.nih.gov/cgi-bin/sis/search>)**

4-nitro phenol

Robust Summary

No consistent, dose-related effect was noted in METH values, while some very slight changes in HGB and HCT were seen in HD males. The relationship of these effects to PNP treatment is unclear. No treatment-related effects were seen in other hematologic or clinical chemistry parameters. No gross or microscopic pathological effects or organ weight changes were noted that were attributed to PNP. No effects on the gonads was observed. A NOEL was established as 5 mg/m³.

4-nitro phenol

Despite the low NOAEL, the one mammalian inhalation study of this substance in HPVIS is inadequate for setting an Occupational Exposure Limit.

4-nitro- Benzenamine

There was no evidence of maternal or developmental toxicity at atmospheric concentrations up and including 10.0 mg/m³

Amoco Corporation (1989) A Segment II Inhalation Teratology Study of Terephthalic Acid in Rats. Conducted by IIT Research Institute. IITRI Study #1448.

Except for tracheal irritation from particulate terephthalic acid, no other effects were observed.

Amoco Corporation (1973) 4-Week Inhalation Toxicity Study of Terephthalic Acid (TA) In Rats. Conducted by IIT Research Institute. IITRI Study #1104.

Methyl 4-Formyl benzoate

Despite the low NOAEL, the mammalian inhalation studies of this substance in HPVIS are inadequate for setting an Occupational Exposure Limit.

Summary

- Of the five substances with the lowest NOAELs / LOAELs in the database, three have TLVs.
- For the other two, the data are inadequate to set OELs.
- Database needs more work to be practically useful