

TABLE V-8: SUMMARY OF SELECTED CARCINOGENICITY STUDIES IN EXPERIMENTAL ANIMALS ADMINISTERED HEXAVALENT CHROMIUM Slightly Water Soluble Chromates

Compound	Route	Sex/Species/ Strain (# in exposed groups)	Dose Administered ¹ and Observation Periods	Tumor Incidence	Reference/Exhibit #
Calcium chromate	Inhalation	Male/female C57BL/6 mice (136 per group)	4.3 mg Cr(VI)/m ³ , 5 hr/d, 5d/wk over animal lifetime	Lung adenoma (M/F combined): 14/272 vs 5/272 for controls	Nettesheim et al. (1971, Ex. 10-8)
	Intrabronchial	Male/female Porton- Wistar rats (100 per group)	0.67 mg Cr(VI) as a single dose mixed w cholesterol in steel pellet and evaluated at 2 years	Bronchial carcinoma (M/F combined): 25/100 (p<0.01)	Levy et al. (1986, Ex. 11-2)
	Intratracheal	Male/female Sprague Dawley rats (40 per group)	5 x weekly: 0.083 mg Cr(VI)/kg bw for 30 mo 1 x weekly: 0.41 mg Cr(VI)/kg bw for 30 mo	Lung tumors (M/F combined)- 5 x weekly: 0.083 mg/kg- 6/80 (p<0.01) 1 x weekly: 0.41 mg/kg-13/80 (p<0.01)	Steinhoff et al. (1986, Ex. 11-7)
Strontium chromates (two different compounds)	Intratracheal	Male Sprague Dawley rats (50 per exposed group)	0.67 mg Cr(VI)/kg bw x 13 installations over 20 wks and evaluated at 2 to 2.5 yr	Lung tumors: 1/44 (NS)	Snyder et al. (1997, Ex. 31-18- 12)
	Intrabronchial	Male/female Porton- Wistar rats (50 per exposed group)	0.48 mg Cr(VI) as a single dose mixed w cholesterol in steel pellet and evaluated at 2 years	Bronchial carcinoma (M/F combined): 43/99 & 62/99 (p<0.01)	Levy et al. (1986, Ex. 11-2)
Zinc chromates (three different compounds)	Intrabronchial	Male/female Porton- Wistar rats (50 per exposed group)	0.42 to 0.52 mg Cr(VI) as a single dose mixed w cholesterol in steel pellet and evaluated at 2 years	Bronchial carcinoma (M/F combined): 3/61 (p<0.05), 5/100 (p<0.05), 3/100 (p=0.07)	Levy et al. (1986, Ex. 11-2) Levy and Venitt (1986, Ex. 11-12)
	Intrabronchial	Male/female Porton- Wistar rats (50 per exposed group)	0.18 mg Cr(VI) as a single dose mixed w cholesterol in steel pellet and evaluated at 2 years	Bronchial carcinoma (M/F combined): 1/100 (NS)	Levy et al. (1986, Ex. 11-2)

¹ doses calculated and recorded as mg of Cr(VI), rather than specific chromate compound, where possible

Not Statistically significant – NS

Male/Female – M/F

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Calcium chromate. Nettesheim *et al.* conducted the only available inhalation carcinogenicity study with calcium

chromate showing borderline statistical significance for increased lung adenomas in C57B1/6 mice exposed to 13 mg/m³ for 5 hours per day, 5 days

per week over the life of the mice. The tumor incidences were 6/136 in exposed male mice vs. 3/136 in control male mice and 8/136 in exposed female mice