

TABLE V-7: SUMMARY OF SELECTED CARCINOGENICITY STUDIES IN EXPERIMENTAL ANIMALS ADMINISTERED HEXAVALENT CHROMIUM Highly Water Soluble Chromates

Compound	Route	Sex/Species/ Strain (# in exposed groups)	Dose Administered ¹ and Observation Periods	Tumor Incidence	Reference/Exhibit #
Chromic acid (Chromium trioxide)	Inhalation	Female ICR mice (50 per exposed group)	3.6 mg Cr(VI)/m ³ for 30 min per day, 2 d/wk up to 12 mo. Histopathological evaluation at periods up to 18 mo	-Lung tumors: 7/48 vs 2/20 for control -5 benign adenomas and 2 adenocarcinomas	Adachi et al. (1986, Ex. 35-26-1)
	Inhalation	Female C57BL mice (23 examined at 12 mo; 20 examined at 18 mo)	1.8 mg Cr(VI)/m ³ for 120 min 2 x week for 12 months Histopathological evaluation at 12 and 18 mo	Nasal papilloma: 6/20 (p<0.05) at 18 mo; Lung adenoma: 1/20 (NS) at 18 mo	Adachi (1987, Ex. 35-219)
	Intrabronchial	Male/female Porton-Wistar rats (50 per exposed group)	1.0 mg Cr(VI) as single dose mixed w cholesterol in steel pellet and evaluated at 2 years	Bronchial carcinoma (M/F combined) : 2/100 (N.S.)	Levy et al. (1986, Ex. 11-2)
Sodium dichromate	Inhalation	Male Wistar rats (20 per exposed group)	0.025, 0.050 and 0.10 mg Cr(VI)/m ³ 22-23 hr/day, 7 d/wk for 18 months; evaluated at up to 30 months	Lung tumors: 0.025 mg/m ³ - 0/18; 0.05 mg/m ³ - 0/18; 0.1 mg/m ³ - 3/19 (NS)	Glaser et al. (1986, Ex. 10-11)
	Intrabronchial	Male/female Porton-Wistar rats (50 per exposed group)	0.8 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)
	Intratracheal	Male/female Sprague Dawley rats (40 per exposed group)	5 x weekly: 0.0034, 0.017, 0.086 mg Cr(VI)/kg bw for 30 mo 1x weekly: 0.017, 0.086, 0.43 mg Cr(VI)/kg bw for 30 mo	Lung tumors (M/F combined)- 5 x weekly: 0/80 in all groups 1 x weekly: 0.017 mg/kg -0/80; 0.086 mg/kg-1/80; 0.43 mg/kg-14/80 (p<0.01)	Steinhoff et al. (1986, Ex. 11-7)

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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Chromic acid (Chromium trioxide). In a study by Adachi *et al.*, ICR/Jcl mice were exposed by inhalation to 3.63 mg/

m³ for 30 minutes per day, two days per week for up to 12 months (Ex. 35-26-1). The mice were observed for an additional six months. The authors used

a miniaturized chromium electroplating system to generate chromic acid for the study. The authors found there were elevations in lung adenomas at 10-14