

**G061**  
**2-Mercaptobenzothiazole [149-30-4]**

**Results of Testing**

Chemical Name	CAS No.	Study Code/Type	Protocol/Guideline	Species	Exposure	Dose/Concentration	No. per Group	Results	Reference
2-Mercaptobenzothiazole	149-30-4	EECTOX Fish early life stage	40 CFR 797.1600 (modified)	Rainbow trout	89 days (69 days post-hatch)	0, 24, 48, 95, 190, 380 µg/L (nominal)	Not specified	Embryo viability in all concentrations ranged from 91 to 97%. Survival at the completion of the hatching period (day 31) in all concentrations ranged from 86% (380 µg/L) to 89% (24 µg/L). At termination, survival at all concentrations ranged from 90-95%. Larval length was the most sensitive indicator of toxicity, mean total length of larvae exposed to levels greater than 78 µg/L ranged from 51.3 - 52.0 mm and was significantly less than controls. The mean weight at the 380 µg/L level was 1.1582 g which was significantly reduced as compared to controls. The Maximum Acceptable Toxicant Concentration (MATC) was estimated to be greater than 41 µg/L and less than 78 µg/L.	54 FR 46980; 11/8/89 OTS0525082
2-Mercaptobenzothiazole	149-30-4	EECTOX Chronic invertebrate toxicity	40 CFR 797.1330 (modified)	<i>Daphnia magna</i>	flow-through, 21 days	0, 31, 63, 130, 250, 500 µg/L (nominal)	Not specified	On day 21, survival at 500 µg/L was 58% which was significantly less than controls. Survival at the remaining concentrations ranged from 93 to 98%. The 21-day EC <sub>50</sub> was estimated to be greater than 470 µg/L. The cumulative number of offspring at concentrations less than 250 µg/L ranged from 89 to 138. The Maximum Acceptable Toxicant Concentration was estimated to be greater than 240 mg/L and less than 470 µg/L.	54 FR 46980; 11/8/89 OTS0525082
2-Mercaptobenzothiazole	149-30-4	EFADEGPHOT Indirect photolysis screening	40 CFR 796.3765	Not applicable	synthetic humic waste (SHW) and pure water (W), pH 7.0	400 µg/L of test substance; 20 mL of SHW or W	Not applicable	The ratio of (kp)SHW/(kp)W is 1.113 and suggests that the test substance is marginally susceptible to indirect photolysis. The results clearly show that photolytic breakdown of the test substance occurs rapidly with half lives under one hour. The calculated half-lives are 27.4 minutes for synthetic humic water and 31.1 minutes for pure water. The test substance can be classified as "photolabile".	54 FR 46980; 11/8/89 OTS0525082

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2-Mercaptobenzothiazole	149-30-4	EFBDEG Aerobic aquatic biodegradation	40 CFR 796.3100	Not applicable	28 days	20 mg/L	Not applicable	Minor, but not statistically significant degradation of the test substance was detected. A mean of 0.1% of the initial <sup>14</sup> C-2-MBT added was recovered as radiolabeled CO <sub>2</sub> in potassium hydroxide (KOH) traps. A mean of 0.1% of the initial <sup>14</sup> C-2-MBT along with a microbial inhibitor was recovered as radiolabeled CO <sub>2</sub> in KOH traps. A mean of 78.4% of the initial radiolabeled glucose added was recovered in KOH traps as <sup>14</sup> CO <sub>2</sub> .	54 FR 46980; 11/8/89 OTS0525082
2-Mercaptobenzothiazole	149-30-4	EFTSPT Soil and sediment adsorption isotherm	40 CFR 796.2750	Not applicable	120 hr	16 µg/mL (nominal)	Not applicable	Preliminary studies showed 120 hours incubation of aqueous phase with soils/sediments were necessary to reach equilibrium. Adsorption characteristics varied appreciably among the three soil types but were similar for the sediments. There was an apparent correlation with the cation exchange capacity and percent organic matter in the soils. Resultant K <sub>d</sub> and K <sub>oc</sub> adsorption coefficients when compared to similar data from other compounds suggested that the test substance mobility was medium to low in soil and slight to immobile in sediments.	54 FR 46980; 11/8/89 OTS0525082
2-Mercaptobenzothiazole	149-30-4	HEADME General metabolism (voluntary test)	40 CFR 798.7470 (modified)	rats	dermal (topical), 96 hr	0.0361, 0.0336 mg/kg	4 males; 4 females	More of the radioactive test material could be removed by washing the skin of guinea pigs than by washing the skin of rats. At 96 hours, 16.1 and 17.5% of the dose was absorbed by male and female rats, respectively. Male and female rats dosed topically with the test material excreted 11.9 and 13.4%, respectively, in the urine and 0.980 and 0.641% of the dose in the feces.	52 FR 13311; 4/22/87 OTS0521671
2-Mercaptobenzothiazole	149-30-4	HEADME General metabolism (voluntary test)	40 CFR 798.7470 (modified)	guinea pigs	dermal (topical), 96 hr	0.0361, 0.0336 mg/kg	4 females	More of the radioactive test material could be removed by washing the skin of guinea pigs than by washing the skin of rats. At 96 hours 38.4% of the dose was absorbed. Female guinea pigs dosed topically with the test material excreted 33.3% in the urine and 0.389% of the dose in the feces.	52 FR 13311; 4/22/87 OTS0521671

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2-Mercaptobenzothiazole	149-30-4	HEADME General metabolism (voluntary test)	40 CFR 798.7470 (modified)	rats	oral (gavage), 96 hr	0.592, 55.5 mg/kg	4 male; 4 female	High-dose test animals exposed to <sup>14</sup> C-MBT and <sup>14</sup> C MBTS (2-mercaptobenzothiazole and 2-mercaptobenzothiazole disulfide, respectively) excreted (within 96 hours) 72.1 to 106% of the administered dose in urine, and 4.03 to 10.3% was excreted in the feces. A small portion (0.423 to 2.04%) of the dose remained associated with the erythrocytes. Low-dosed animals retained a higher percent of the dose in whole blood and plasma than did the high-dose animals.	51 FR 39799; 10/31/86 OTS0510971
2-Mercaptobenzothiazole	149-30-4	HECTOXCARC Carcinogenicity study	National Toxicology Program (NTP)	F344/N rats	gavage, 5 d/wk, 103 weeks	0, 375, 750 mg/kg (male); 0, 188, 375 mg/kg (female)	50 male 50 female	Some evidence of carcinogenicity for male rats indicated by increased incidences of mononuclear cell leukemia, pancreatic acinar cell adenomas, adrenal gland pheochromocytomas, and preputial gland adenomas or carcinomas (combined). Some evidence of carcinogenicity in female rats indicated by increased incidences of adrenal gland pheochromocytomas and pituitary gland adenomas.	TR-332, May 1988, NTIS PB88245154
2-Mercaptobenzothiazole	149-30-4	HECTOXCARC Carcinogenicity study	National Toxicology Program (NTP)	B6C3F <sub>1</sub> mice	gavage, 5 d/wk, 103 weeks	0, 375, 750 mg/kg	50 male 50 female	No evidence of carcinogenicity in male mice at either dose. Equivocal evidence of carcinogenicity in female mice indicated by increased incidences of hepatocellular adenomas or carcinomas (combined).	TR-332, May 1988, NTIS PB88245154
2-Mercaptobenzothiazole	149-30-4	HEGTOXCHRM Rodent dominant lethal study	40 CFR 798.5450	rats	oral (diet), 13 weeks, followed by 2 weeks treatment during breeding period	0, 2500, 8750, 15,000 ppm	28/group	Decreased body weight gain (all groups) and food consumption (mid- and high-groups) was observed. The treatment did not increase the incidence of embryonic deaths or decrease the number of viable embryos, indicating that the test compound was not mutagenic to germ cells in the male rat.	54 FR 46980; 11/8/89 OTS0524631
2-Mercaptobenzothiazole	149-30-4	HENEUR Neuropathology	40 CFR 798.6400 (modified)	rats	oral (dietary), 13 wks	0, 5000, 15,000, 25,000 ppm	12/sex	No gross or neuropathological effects were noted at any test level.	55 FR 19786; 5/11/90 OTS0530505
2-Mercaptobenzothiazole	149-30-4	HENEUR Motor activity	40 CFR 798.6200 (modified)	rats	oral (dietary), 13 wks	0, 5000, 15,000, 25,000 ppm	12/sex	No effects were noted on motor activity at any test level.	55 FR 19786; 5/11/90 OTS0530505
2-Mercaptobenzothiazole	149-30-4	HENEUR Functional observational battery	40 CFR 798.6050 (modified)	rats	oral (dietary), 13 wks	0, 5000, 15,000, 25,000 ppm	12/sex	No mortalities occurred. Reduced body weight were noted in high-dose males and in females at 15,000 ppm and higher, along with sporadic reductions in food intake. No effects were noted on grip strength or hind limb splay.	55 FR 19786; 5/11/90 OTS0530505

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2-Mercaptobenzothiazole	149-30-4	HERTOXTERA Developmental toxicity	40 CFR 798.4900	rats	oral (gavage), gestation days 6-15	0, 300, 1200, 1800 mg/kg/day	26/group	Body weight gain and food intake were reduced in high-dose dams and clinical signs of toxicity (salivation, urine staining, and dark material around the mouth) were observed in mid- and high-dose dams. The treatment had no adverse effects with respect to fetal viability, body weights, sex ratio or incidence of external, visceral, or skeletal malformations for variations. Post-implantation loss was increased in the high-dose group. NOEL's for maternal and developmental toxicity were 300 and greater than 1800 mg/kg/day, respectively.	54 FR 46980; 11/08/89 OTS0525082
2-Mercaptobenzothiazole	149-30-4	HERTOXTERA Developmental toxicity	40 CFR 798.4900	rabbits	oral (gavage), gestation day 6-18	0, 50, 150, 300 mg/kg/day	20/group	Slight maternal toxicity (decreased relative liver weight) was observed in high-dose does. The treatment had no adverse effects with respect to survival, body weight gain, food intake, clinical signs, and gross morphology. There was no effect of treatment on fetal viability, body weights, or incidences of external, visceral, or skeletal malformations or variations. NOEL's for maternal and developmental toxicity were 150 and greater than 300 mg/kg/day, respectively.	54 FR 46980; 11/08/89 OTS0525082
2-Mercaptobenzothiazole	149-30-4	HERTOXTERE Reproductive toxicity	40 CFR 798.4700	rats	oral (dietary), at least 70 days prior to mating, through 2 generations	2,500, 8,750, 15,000 ppm	28/sex	No mortalities occurred. Treatment-related decreased body weight gain was seen in males from all groups and in mid- and high-dose females. Body weights were reduced in mid- and high-dose F1 pups, and in all treatment-group F2 pups. Absolute and relative kidney weights were increased for F0 and F1 males in the two highest treatment groups. No effects were noted on reproductive indices.	54 FR 46980; 11/8/89 OTS0530506