

Results of Testing

Chemical Name	CAS No.	Study Code/Type	Protocol/Guideline	Species	Exposure	Dose/Concentration	No. per Group	Results	Reference
Cumene	98-82-8	EEATOX Mysid shrimp acute toxicity	40 CFR 797.1930 (modified)	<i>Mysidopsis bahia</i>	flow-through, 96 hr	0, 0.40, 0.60, 1.0, 1.7, 3.3, 4.3 mg/L (mean measured)	20 (10/replicate)	The 96-hour LC ₅₀ (and 95% confidence limits) was 1.2 (1.0-1.4) mg/L, indicative of moderate toxicity. The NOEC was 0.40 mg/L.	55 FR 11253 3/27/90 OTS0532653
Cumene	98-82-8	EEATOX Fish acute toxicity	40 CFR 797.1400 (modified)	rainbow trout	flow-through, 96 hr	0, 0.87, 1.2, 1.9, 2.8, 4.9, 6.4 mg/L (mean measured)	20 (10/replicate)	The 96-hour LC ₅₀ (and 95% confidence limits) was 4.8 (4.2-5.5) mg/L, indicative of moderate toxicity. The NOEC was 1.9 mg/L.	55 FR 11253 3/27/90 OTS0532653
Cumene	98-82-8	EEATOX Mysid shrimp acute toxicity	40 CFR 797.1930 (modified)	<i>Mysidopsis bahia</i>	flow-through, 96 hr	0, 0.22, 0.38, 0.68, 1.1, 2.0 mg/L (mean measured)	20 (10/replicate)	The 96-hour LC ₅₀ (and 95% confidence limits) was 1.3 (1.1-2.0) mg/L, indicative of moderate toxicity. The NOEC was 0.68 mg/L.	55 FR 11253 3/27/90 OTS0532653
Cumene	98-82-8	EEATOX Fish acute toxicity	40 CFR 797.1400 (modified)	sheepshead minnow	flow-through, 96 hr	0, 2.9, 4.3, 5.6, 8.1, 14, 17 mg/L	20 (10/replicate)	The 96-hour LC ₅₀ (and 95% confidence limits) was 5.7 (4.3-8.1) mg/L, indicative of moderate toxicity. The NOEC was <2.9 mg/L.	55 FR 11253 3/27/90 OTS0532653
Cumene	98-82-8	EEATOX Acute invertebrate toxicity	40 CFR 797.1300 (modified)	<i>Daphnia magna</i>	flow-through, 48 hr	0, 1.5, 2.4, 6.1, 8.9 mg/L (mean measured)	20 (10/replicate)	The 48-hour EC ₅₀ (and 95% confidence limits) was 3.5 (3.1-4.0) mg/L for filtered samples and 4.0 (3.5-4.5) mg/L for unfiltered samples. The NOEC was 2.4 mg/L.	55 FR 11253 3/27/90 OTS0532653
Cumene	98-82-8	EEBDEG Aerobic Aquatic Biodegradation	Non-TSCA Protocol/Guideline (docket OPTS-42074A)	freshwater sediment and aquatic micro-organisms	glass/teflon ecocores incubated at 23 °C in darkness; 10 days	2.5 mg/L ¹⁴ C-cumene	Not applicable	Cumene was not detectable after 10 days. First-order cumene mineralization and disappearance rate constants of 0.02/day and 0.28/day, respectively, were calculated from the data.	55 FR 357; 1/4/90 OTS0522882
Cumene	98-82-8	EFTSPTVOLZ Volatilization study	Non-TSCA Protocol/Guideline (docket OPTS-42074A)	Not applicable	water	Not specified	Not applicable	The ratio of volatilization rate to oxygen re-aeration rate (k _v /k _a) was 0.49±0.09 at 23 °C.	54 FR 39806; 9/28/89 OTS0522879
Cumene	98-82-8	HEADME Pharmacokinetic study	40 CFR 795.230	rats	intravenous, single dose	33 mg/kg	4/sex/group	Males excreted 61% in urine and females excreted 67% of radiolabel in urine within 24 hours post-dosing, and 79 and 77%, respectively, within 72 hours. Fecal excretion was minimal (≤1.1%) in 72 hours. Exhaled breath contained a total of 8.4% (males) and 8.6% (females) as volatile compounds, and less than 0.1% of radiolabel. Carcasses retained 0.34% (males) and 0.22% (females) of radiolabel. Terminal half-life in blood for radiolabel was 8.6 hours (males) and 7.3 hours (females). 2-Phenyl-1,2-propanediol and 2-phenylpropionic acid, plus 6 unknown metabolites were isolated in urine.	55 FR 357; 1/4/90 OTS0522880

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Cumene [98-82-8]

Chemical Name	CAS No.	Study Code/Type	Protocol/Guideline	Species	Exposure	Dose/Concentration	No. per Group	Results	Reference
Cumene	98-82-8	HEADME Pharmacokinetic study	40 CFR 795.230	rats	inhalation (nose only), 48 or 72 hr	102, 525, 1328 ppm (mean measured)	4/sex/group	Excretion of the absorbed dose was rapid; >95% of radiolabel was excreted within 72 hours of the beginning of exposure to all 3 exposure levels. Urine was the major route. Fecal elimination accounted for 2-5% of radiolabel, and exhalation accounted for 8-17%. Distribution was wide, and accumulation was mainly in adipose tissue, liver, kidney, and skeletal muscles. Terminal half-life estimates for cumene, itself, are 17-30 hours.	55 FR 357; 1/4/90 OTS0522880
Cumene	98-82-8	HEADME Pharmacokinetic study	40 CFR 795.230	rats	oral (gavage), single dose or repeat dose, 8 days	33 or 1350 mg/kg (single dose); 33 mg/kg (repeat dose)	4/sex/dose	Single exposure rats excreted ≥90% of radiolabel within 72 hours. Low-dose rats excreted about 88% of radiolabel in urine, and high-dose rats, 72%. In 72 hours, ≤3.3% of radiolabel was eliminated in feces, while in exhaled air, values were ≤4.9% in low-dose animals and 12-15% in high-dose rats. Repeat-exposure rats followed a pattern similar to that of single low-dose rats. Distribution was primarily to liver, kidney, and adipose tissue in all treatment groups. 2-Phenyl-1,2-propanediol and 2-phenylpropionic acid, plus 6 unknown metabolites were isolated in urine.	55 FR 357; 1/4/90 OTS0522880
Cumene	98-82-8	HECTOXTRFM Morphological transformation of BALB/3T cells (Voluntary test)	Non-TSCA Protocol/Guideline	mice, BALB/3T3 cells	<i>in vitro</i>	0, 50, 100, 150, 200, 250, 300, 400, 500 µg/mL	Not applicable	High toxicity prevented analysis of transformation in cell cultures exposed to concentrations ranging from 250 to 500 µg/mL. Cell survival was concentration-related and ranged from 4 to 102% at concentrations of 200-50 µg/mL. The treatment did not increase the numbers of Type III foci, indicating that the compound was negative for cell transformation in the mouse under the conditions of the studies.	52 FR 27452; 7/21/87 OTS0522854
Cumene	98-82-8	HEGTOXCHRM Mammalian cytogenetics assay (Voluntary test)	Non-TSCA Protocol/Guideline	Chinese ham- sters, ovary cells (CHO)	<i>in vitro</i>	19 to 225 µg/mL	Not applicable	No treatment-related increases were noted in chromosomal aberrations in the presence or absence of metabolic activation at concentrations encompassing the level of cytotoxicity.	52 FR 27452; 7/21/87 OTS0522852
Cumene	98-82-8	HEGTOXDNAF Unscheduled DNA synthesis (Voluntary test)	Non-TSCA Protocol/Guideline	rats, primary hepatocytes	<i>in vitro</i>	1 to 128 µg/mL	Not applicable	No evidence of treatment-related effects on DNA synthesis were noted.	52 FR 27452; 7/21/87 OTS0522853
Cumene	98-82-8	HEGTOXMUTA Mutagenicity study (Ames study) (Voluntary test)	Non-TSCA Protocol/Guideline	<i>Salmonella</i> <i>typhimurium</i>	<i>in vitro</i>	0.01, 0.04, 0.2 mg/plate	Not applicable	The test material was not mutagenic to the test strains (TA98, TA100, TA1535, and TA1537) with or without metabolic activation. At 0.2 mg/plate, the test material was toxic to all four test strains.	52 FR 27452; 7/21/87 OTS0512312
Cumene	98-82-8	HEGTOXMUTA Gene mutations in somatic cells (CHO/HGPRT) (Voluntary test)	Non-TSCA Protocol/Guideline	hamsters	<i>in vitro</i>	100 to 225 µg/mL	Not specified	No evidence of treatment-related increased incidence of forward mutations was observed in the presence or absence of exogenous activation at levels encompassing cytotoxicity.	52 FR 27452; 7/21/87 OTS0522853

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Chemical Name	CAS No.	Study Code/Type	Protocol/Guideline	Species	Exposure	Dose/Concentration	No. per Group	Results	Reference
Cumene	98-82-8	HENEUR Functional Observational Battery	40 CFR 798.6050 (modified)	rats	inhalation, 6 hr/d, 5 d/wk, 13 wks	0, 100, 496, 1202 ppm (mean measured)	21/sex/group	No treatment-related effects were seen.	55 FR 357; 1/4/90 OTS0522881
Cumene	98-82-8	HENEUR Neuropathology	40 CFR 798.6400 (modified)	rats	inhalation, 6 hr/d, 5 d/wk, 13 wks	0, 100, 496, 1202 ppm (mean measured)	21/sex/group	Ataxia was seen in high-dose rats during the first 17 days of treatment. Exposure-related ocular effects were seen (swelling and cataracts). Histopathological examination did not reveal exposure-related changes in tissues of peripheral or central nervous systems.	55 FR 357; 1/4/90 OTS0522881
Cumene	98-82-8	HENEUR Motor activity test	40 CFR 798.6200 (modified)	rats	inhalation, 6 hr/d, 5 d/wk, 13 wks	0, 100, 496, 1202 ppm (mean measured)	21/sex/group	Decreased motor activity was noted in the 2 highest exposure groups at weeks 4, 9, and 13. Gait abnormalities, decreased rectal temperature, and increased activity were noted at 1 hour after the first exposure.	55 FR 357; 1/4/90 OTS0522881
Cumene	98-82-8	HERTOXTERA Developmental toxicity study	40 CFR 798.4350	rabbits	inhalation, 6 hr/d; gestation days 6-18	0, 492, 1206, 2297 ppm (mean measured)	15/exposure level	Maternal toxicity was noted at 500 ppm (dose-related decreased body weight gain). No evidence of treatment-related embryotoxicity, fetotoxicity or teratogenicity were noted.	55 FR 357; 1/4/90 OTS0522881
Cumene	98-82-8	HERTOXTERA Developmental toxicity study	40 CFR 798.4350	rats	inhalation, 6 hr/d; gestation days 6-15	0, 100, 500, 1200 ppm (mean analytical)	25/group	Maternal toxicity was noted at 500 and 1200 ppm, evidenced at 1200 ppm by significant reductions in body weight gain and treatment-related clinical signs of toxicity (perioral wetness and perioral encrustations) following daily exposures as well as during exposures (hypoactivity and blepharospasm), decreased food consumption during the exposure period and increased relative liver weight at necropsy. Reduced food consumption and clinical observations during exposure were observed at 500 ppm as well. Gestational parameters (viable implantations per litter, sex ratio, fetal body weights) were unaffected by exposure.	55 FR 357; 1/4/90 OTS0522881
Cumene	98-82-8	HESTOX Subchronic inhalation toxicity	40 CFR 798.2450 (modified)	rats	inhalation, 6 hr/d, 5 d/wk, 13 wks	0, 100, 496, 1202 ppm (mean measured)	21/sex/group	No exposure-related mortalities occurred. Minimal hematologic changes (increased leukocytes, lymphocytes, and platelets) and serum chemistry changes (increased total protein, albumin, globulin, calcium, and phosphorus; decreased glucose) were noted at 496 ppm and higher. Exposure-related increased mean absolute and relative weights of liver, kidneys, and adrenal glands were noted. Histopathological examination revealed kidney lesions in these groups.	55 FR 357; 1/4/90 OTS0522881