

Methyl *tert*-Butyl Ether [1634-04-4]Results of Testing

Chemical Name	CAS No.	Study Code/Type	Protocol/Guideline	Species	Exposure	Dose/Concentration	No. per Group	Results	Reference
Methyl <i>tert</i> -Butyl Ether	1634-04-4	HEADME Pharmacokinetics	Non-TSCA Protocol/ Guideline (docket 42028D)	rats	dermal, single exposure under occluded patch for 6 hours	40,400 mg/kg	60/sex	Maximum plasma concentrations were seen at 2 to 6 hours after the start of exposure. <i>tert</i> -Butyl alcohol was the major circulating metabolite, and peak concentrations were seen at 1 to 4 hr post dosing. Total plasma clearance was 389 to 458 mL/hour (low dose) and 273 to 364 mL/hour (high dose). The apparent volume of distribution was 0.60 to 3.9 (high and low dose, respectively).	55 FR 29411; 7/19/90 OTS0528044
Methyl <i>tert</i> -Butyl Ether	1634-04-4	HEADME Pharmacokinetics	Non-TSCA Protocol/ Guideline (docket 42028D)	rats	inhalation, nose- only; a) single 6 hr or b) 6 hr/d for 15 days	a) 0, 400, 8000 ppm or b) 0, 400 ppm	a) 52/sex or b) 40/sex	a) Steady-state plasma concentration was reached at 2 hours. Plasma elimination followed a one-compartment model. The elimination half-life was 0.52 and 0.63 hours for 400 and 8000 ppm exposures, respectively. The apparent volume of distribution was about 0.40 L and 0.52 L for low dose males and females, respectively, and 0.25 and 0.24 L for the high dose males and females, respectively. b) The plasma elimination half-life was 0.48 to 0.51 hours.	55 FR 29411; 7/19/90 OTS0528044
Methyl <i>tert</i> -Butyl Ether	1634-04-4	HEADME Pharmacokinetics	Non-TSCA Protocol/ Guideline (docket 42028D)	rats	oral (gavage), single dose	40,400 mg/kg	40/sex	Maximum plasma concentrations were seen at 15 minutes after dosing. <i>tert</i> -butyl alcohol was the major circulating metabolite, and peak concentrations were seen at 1 to 4 hours post-dosing. Total plasma clearance was 392 to 481 mL/hour (low-dose) and 287 to 358 mL/hour (high-dose) and the apparent volume distribution ranged from 0.27 to 0.43 L (high and low dose, respectively).	55 FR 29411; 7/19/90 OTS0528044

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Chemical Name	CAS No.	Study Code/Type	Protocol/Guideline	Species	Exposure	Dose/Concentration	No. per Group	Results	Reference
Methyl <i>tert</i> -Butyl Ether	1634-04-4	HECTOXCARC Oncogenicity study	40 CFR 798.3300 (modified)	mice	inhalation; 6 hr/day, 5 days/week, for 18 months	0, 400, 3000, 8000 mg/kg	50/sex	An increased mortality rate and decreased mean survival time were observed only for male mice from the 8000 ppm group. At necropsy and upon microscopic examination, there were no exposure-related increases in nonneoplastic or neoplastic lesions in these organs except for the liver. At necropsy, an increase in the number of liver masses was observed from male and female mice from the 8000 ppm group. Upon microscopic evaluation, the only nonneoplastic lesion observed in the study was an increased incidence of hepatocellular hypertrophy noted for both sexes of mice from the 8000 ppm group and males from the 3000 ppm group. The only neoplastic lesion observed was an increased number of adenomas from female mice from the 8000 ppm group. The NOEL for toxic effects in mice was 400 ppm and the NOEL for oncogenicity effects in females was 3000 ppm and males was 8000 ppm.	57 FR 5911; 12/14/91 Docket OPPTS-44593
Methyl <i>tert</i> -Butyl Ether	1634-04-4	HECTOXCARC Oncogenicity study	40 CFR 798.3300 (modified)	rats	inhalation; 6 hr/day, 5 days/week, for 24 months	0, 400, 3000, 8000 mg/kg	50/sex	An increased mortality rate and decreased mean survival time were observed for male rats from the 3000 and 8000 ppm groups. The only neoplastic lesion noted was an increase in the number of adenomas and carcinomas in the kidneys of males rats exposed to 3000 or 8000 ppm. An increased incidence of nephropathy in male rats was observed even at the lowest concentration, thus, a NOEL could not be determined. However, the NOEL for oncogenicity effects in males was 400 ppm. The NOEL for toxic effects in females was 400 ppm and the NOEL for oncogenicity effects in females was greater than 8000 ppm.	57 FR 5911; 12/14/91 Docket OPPTS-44593
Methyl <i>tert</i> -Butyl Ether	1634-04-4	HEGTOXCHRM Mammalian bone marrow chromo- somal aberration assay	40 CFR 798.5385 (modified)	rats	inhalation; 6 hr/d, 5 days	0, 800, 4000, 8000 ppm (target)	5/sex	No evidence of increased chromosomal aberrations was noted as compared to controls.	54 FR 25167; 6/13/89 OTS0528040
Methyl <i>tert</i> -Butyl Ether	1634-04-4	HEGTOXMUTA Sex-linked recessive lethal assay	40 CFR 798.5275 (modified)	<i>Drosophila melanogaster</i>	<i>in vivo</i> in sucrose solutions; 24 hours	0, 0.03%, 0.15%, 0.3% solutions	50 males	Survival of high-, mid-, and low-exposure groups was 55.2, 76.8, and 86.0%, respectively. Solvent controls had 98.9% survivors. No evidence of mutagenicity was seen under these study conditions.	54 FR 21282; 5/17/89 OTS0528039

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Methyl <i>tert</i> -Butyl Ether	1634-04-4	HENEUR Motor activity	40 CFR 798.6200 (modified)	rats	inhalation; 6 hr/d, 5 d/wk, 13 weeks	0, 797, 3920, 8043 ppm (mean measured)	25/sex	Motor activity was decreased in males at 8043 ppm at week 8, only. Females exhibited increased activity at 3920 ppm (weeks 8 and 13).	54 FR 42034; 10/13/89 OTS0528043
Methyl <i>tert</i> -Butyl Ether	1634-04-4	HENEUR Neuropathology study	40 CFR 798.6400 (modified)	rats	inhalation; 6 hr/d, 5 d/wk, 13 weeks	0, 797, 3920, 8043 ppm (mean measured)	25/sex	Absolute brain weight was decreased in the 8043 ppm group, but relative brain weight was not altered. No histopathological changes were seen in tissues of the peripheral or central nervous system.	54 FR 42034; 10/13/89 OTS0528043
Methyl <i>tert</i> -Butyl Ether	1634-04-4	HENEUR Functional observational battery	40 CFR 798.6050 (modified)	rats	inhalation; 6 hr/d, 5 d/wk, 13 weeks	0, 797, 3920, 8043 ppm (mean measured)	25/sex	Minor changes were noted at 3920 ppm and higher (e.g., elevated body temperature and decreased hind limb grip strength).	54 FR 42034; 10/13/89 OTS0528043
Methyl <i>tert</i> -Butyl Ether	1634-04-4	HERTOXTERA Developmental toxicity	40 CFR 798.4350 (modified)	mice	inhalation; 6 hr/d, gestation days 6-15	0, 1000, 4000, 8000 ppm (target)	30 timed-pregnant females	Maternal toxicity was noted at 4000 ppm (reduced body weight and weight gain, hypoactivity, and ataxia), and at 8000 ppm, there were also prostration, labored respiration, lacrimation, and periocular encrustations. Reduced fetal body weight/litter and increased incidence of individual skeletal variations were noted in a treatment-related pattern at 4000 ppm and higher. The NOEL for both maternal and developmental toxicity was 1000 ppm.	54 FR 21117; 8/16/89 OTS0528042
Methyl <i>tert</i> -Butyl Ether	1634-04-4	HERTOXTERA Developmental toxicity	40 CFR 798.4350 (modified)	rabbits	inhalation; 6 hr/d, gestation days 6-18	0, 1000, 4000, 8000 ppm (target)	15 timed-pregnant females	Maternal toxicity was observed at 4000 ppm and higher (reduced weight gain and food consumption) and at 8000 ppm, increased relative liver weight was seen. No evidence of embryotoxicity, fetotoxicity, or teratogenicity was observed at any exposure.	54 FR 21117; 8/4/89 OTS0528041
Methyl <i>tert</i> -Butyl Ether	1634-04-4	HERTOXTERE Reproduction/fertility	40 CFR 798.4700 (modified)	rats	inhalation; 10 wks pre-breeding, then continuous through 2 generations	0, 400, 3000, 8000 ppm (target)	25/sex	Parental toxicity was noted at 3000 ppm and higher (lack of startle reflex and blepharospasm), but no treatment-related reproductive effects were observed in any treatment group. Fetotoxicity (decreased weight gain) was seen at 3000 ppm and higher. The NOEL for adults and offspring was 400 ppm.	OTS0534056

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Methyl <i>tert</i> -Butyl Ether	1634-04-4	HESTOX Subchronic toxicity	40 CFR 798.2450 (modified)	rats	inhalation; 6 hr/d, 5 d/wk, 13 weeks	0, 797, 3920, 8043 ppm (mean measured)	25/sex	Transient decreased body weight gain and food consumption was seen at 8043 ppm in both sexes, and in males at 3920 ppm. Mild hematologic and serum changes were seen at 8043 ppm. Concentration-related increased mean absolute and relative liver, kidney, and adrenal gland weights were noted at 797 (males) and 3920 (females) ppm and higher. Lymphoid hyperplasia in the nodes, marked hemosiderosis in the spleen, and larger hyaline droplets in the kidney of males were noted at 8000 ppm.	54 FR 42034; 10/13/89 OTS0528043