2-(2-Ethoxyethoxy)ethanol
(CAS-NR.: 111-90-0)

Mutagenicity:

DEGEE was not mutagenic in vitro (Ames-Test and test with S. cerevisiae). Also an in vivo micronucleus test on Swiss CD mice with i.p.-injection of 2 ml/kg bw/d on 2 subsequent days yielded a negative result.

According to the EC classification criteria there is no classification warranted (M: -).

Carcinogenicity:

There are two old chronic studies in rats available with administration of DEGEE in drinking water (1 %) and in the diet (2.16 %), respectively. There were no indications for a carcinogenic activity of the compound, but both studies suffer from serious shortcomings (only one concentration tested; low numbers of animals tested). Therefore according to the EC classification criteria there is no classification possible (C: -).

Reproductive Toxicity/Fertility:

There is only one publication dealing with fertility aspects of DEGEE [Williams, 1990].

In this study using a continuous breeding protocol male and female Swiss CD-1 mice have been treated with DEGEE in drinking water yielding approximate daily doses of 440; 2200 and 4400 mg/kg bw. The F1-animals of control and 4400 mg/kg-group were continued on treatment and paired for assessment of reproductive performance and fertility.

Effects in F0-mice:

Decrease in mean body weight during weeks 1 + 5/males 4400 mg/kg/d
3 % reduction in adjusted live pup weights/males 440 mg/kg/d
5 % reduction in adjusted live pup weights/females 4400 mg/kg/d.

Effects in F1-mice at sacrifice (4400 mg/kg/d):

Increase in relative liver weight/males + females
Decrease in relative brain weight/males + females
34 % decrease in percentage of motile sperms from cauda epidydimis

All reproductive and fertility parameters were comparabel to the controls. No histologic changes in reproductive organs.

From studies with repeated dosing in rats (2-year feeding studies with max. 2.16 % in diet and 90-day-feeding study with max. 5 % in diet, respectively) there are evidences for testicular damage:

2.16 % in diet (ca. 1000 mg/kg bw/d)	„few“ of 10 males with testicular edemas [Morris et al., 1942]
5 % in diet (ca. 2000 mg/kg bw/d)	5/12 males with testicular edemas (42 %) [Hall, 1966]

In summarizing the results it seems that DEGEE leads to testicular effects in rats and mice after long term exposure to high concentrations. Since the testicular edemas observed in old rat studies are reversible and since there are no indications for a reduced fertility in rats or mice according to the EC classification criteria classification of DEGEE is not warranted (R_F: -).

Reproductive Toxicity/Development:

There are three teratology studies available, 2 on rats and 1 on mice.

CD-1 mice	gavage g.d. 7-14	5500 mg/kg/d [Schuler et al. 1984] Maternal Toxicity: Mortality 7/50 (14 %) Fetal Effects: Significantly reduced pup birth weight (1,5 g versus 1,6 g)
SD-rats	inhalation gd. 7-15, 7 h/d sacrifice gd 20	0; 102 ppm [Nelson et al. 1984] no maternal toxicity; no fetal effects
SD-rats	cutaneous gd. 7-16, 4 x daily at 2.5 h intervals, sacrifice gd 21	4 x 0.35 ml/d (1400 mg/rat/d = 5600 mg/kg bw/d) [Hardin et al. 1984] slight maternal toxicity (reduced extragestational bw gain); no fetal effects

In summary there is no relevant experimental evidence for foetotoxic effects of the substance in rats and mice even in presence of maternal toxicity. Based on these data and according to the EC classification criteria no classification is warranted (R_E: -).