



# Recommendation from the Scientific Expert Group on Occupational Exposure Limits for 2-butoxyethyl acetate

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## Recommendation from the Scientific Expert Group on Occupational Exposure Limits for 2-Butoxyethyl acetate

8 hour TWA	:	20 ppm (133 mg/m <sup>3</sup> )
STEL (15 mins)	:	50 ppm (333 mg/m <sup>3</sup> )
Additional classification	:	"skin"

### Substance:

2-Butoxyethyl acetate



Synonyms : ethylene glycol monobutyl ether acetate; butyl glycol acetate; Butyl Cellosolve® acetate

EINECS N° : 203-933-3

EEC N° : 607-038-00-2

Classification : Xn; R20/21

CAS N° : 112-07-2

MWt : 160.21

Conversion factor (20°C, 101 kPa) : 6.66 mg/m<sup>3</sup> = 1 ppm



## 1. Occurrence/use

2-Butoxyethyl acetate is a colourless liquid with a fruity odour. It has a MPt of -63.5 °C, a BPt of 192 °C and a vapour pressure of 0.04 kPa at 20°C. The vapour density is 5.6 times that of air.

2-Butoxyethyl acetate is primarily used as a solvent for nitrocellulose lacquers, and epoxy and acrylic enamels. The production rate in the EU is in excess of 1000 tonnes per annum.

## 2. Health Significance

There is a lack of data relating to the uptake, metabolism and elimination of 2-butoxyethyl acetate. However, by analogy to 2-ethoxyethyl acetate which has been shown to be hydrolysed to 2-ethoxyethanol and then oxidised to 2-ethoxyacetic acid, it can be assumed that 2-butoxyethyl acetate is metabolised to 2-butoxyethanol and then to 2-butoxyacetic acid.

Toxicity data indicate that, like 2-butoxyethanol, 2-butoxyethyl acetate is well absorbed through the skin. Dermal LD50 values were in the region of 1500 mg/kg in rabbits.

Very few data are available on the toxicity of 2-butoxyethyl acetate. Exposure of rats and rabbits to approximately 400 ppm (2664 mg/m<sup>3</sup>) 2-butoxyethyl acetate for 4 hours resulted in slight transient haemoglobinuria and haematuria only in rabbits (Truhaut *et al.*, 1979). Repeated exposure for 4h/d, 5d/w for 1 month at the same concentration, resulted in these effects being observed in rats, and more pronounced in rabbits, from the second week of exposure (Truhaut *et al.*, 1979). Histopathological examination revealed only renal lesions in female rats and rabbits.

No effects on haematological parameters were seen in rats and rabbits after inhalation of 100 ppm (666 mg/m<sup>3</sup>), 4h/d, 5d/w for 10 months (Truhaut *et al.*, 1979). Histopathological examination revealed only discrete renal lesions in both species, which were also present in some control animals.

Because 2-butoxyethyl acetate is likely to be metabolised to 2-butoxyethanol, it may be predicted that toxic effects similar to those of 2-butoxyethanol would occur.

No data are available concerning developmental, carcinogenic or mutagenic effects of 2-butoxyethyl acetate.

No data are available on the effect of 2-butoxyethyl acetate in humans.

## Recommendation

The data available relating to 2-butoxyethyl acetate are extremely limited. As it is rapidly metabolised to 2-butoxyethanol it is assumed that the toxic effects will be similar. By analogy to 2-butoxyethanol, the recommended 8-hour TWA is 20 ppm (133 mg/m<sup>3</sup>) and a STEL (15 mins) of 50 ppm (333 mg/m<sup>3</sup>) was proposed to limit peaks in exposure which could result in irritation.



A "skin" notation was also recommended as percutaneous absorption is likely to significantly increase the total body burden. In view of the potential for significant skin absorption, biological monitoring may be appropriate.

At the levels recommended, no measurement difficulties are foreseen.



## Key Bibliography

- EC (1996). Recommendation from Scientific Expert Committee on Occupational Exposure Limits for 2-Butoxyethanol.
- ECETOC (1994). Butoxyethanol Criteria Document: including a supplement for 2-butoxyethyl acetate. ECETOC Special Report No 7.
- Henschler, D. (ed). (1984). Criteria document of occupational exposure limits: 2-Butoxyethyl acetate (09.01.84), VCH, Weinheim.
- Truhaut, R. Dutertre-Catella, H., Phu-Lich, N. and Ngoc Huyen, V. (1979). Comparative toxicological study of ethylglycol acetate and butylglycol acetate. *Toxicol. Appl. Pharmacol.* 51, 117-127.