

OPINION OF THE SCIENTIFIC COMMITTEE ON COSMETIC PRODUCTS AND NON-FOOD  
PRODUCTS INTENDED FOR CONSUMERS

CONCERNING

ETHOXYETHANOL, ETHOXYETHANOL ACETATE, 2-METHOXYETHANOL  
AND 2-METHOXYETHANOL ACETATE  
(GLYCOL ETHERS AND THEIR ACETATES)

Adopted by the SCCNFP during the 23<sup>rd</sup> plenary meeting  
of 18 March 2003

## 1. Terms of Reference

The EU Commission has received a notification from the Norwegian Authorities in which they inform that a ban has been introduced in Norway on the use of ethoxyethanol, ethoxyethanol acetate, 2- methoxyethanol and 2-methoxyethanol acetate (glycol ethers and their acetates) in cosmetic products.

The EU Commission would therefore ask the SCCNFP for a safety evaluation of these compounds when used in cosmetic products.

Ethoxyethanol, ethoxyethanol acetate, 2- methoxyethanol and 2-methoxyethanol acetate (glycol ethers and their acetates) have been used as solvent and/or viscosity decreasing agents in cosmetic products. The substances are classified as toxic to reproduction, category 2 according to Directive 67/548/EEC.

## 2. Request to the SCCNFP

The SCCNFP was requested to answer following questions :

- \* Do the safety profiles of the compounds ethoxyethanol, ethoxyethanol acetate, 2-methoxyethanol and 2-methoxyethanol acetate (glycol ethers and their acetates) support their use in cosmetic products?
- \* Does SCCNFP propose any restriction in their use in cosmetic products?

## 3. Chemicals

The chemicals concerned are identified as described below :

### 2-ethoxyethanol :

Emp. Formula : C<sub>4</sub>H<sub>10</sub>O<sub>2</sub>  
 CAS n° : 110-80-5  
 EINECS n° : 203-804-1  
 Synonyms : Ethylene glycol monoethyl ether

### 2-ethoxyethyl acetate:

Emp. Formula : C<sub>3</sub>H<sub>8</sub>O<sub>2</sub>  
 CAS n° : 111-15-9  
 EINECS n° : 203-839-2  
 Synonym : Ethoxyethanol acetate, ethylene glycol monoethyl ether acetate

**2-methoxyethanol :**

Emp. Formula	:	C <sub>3</sub> H <sub>8</sub> O <sub>2</sub>
CAS n°	:	109-86-4
EINECS n°	:	203-713-7
Synonym	:	Ethylene glycol monomethyl ether

**2-methoxyethyl acetate :**

Emp. Formula	:	C <sub>5</sub> H <sub>10</sub> O <sub>3</sub>
CAS n°	:	110-49-6
EINECS n°	:	203-772-9
Synonym	:	Methoxyethanol acetate, ethylene glycol monomethyl ether acetate

**4. Safety Evaluation**

The toxicity of 2-methoxyethanol, 2-ethoxyethanol and their acetates has been evaluated in a number of reviews in the past 20 years (1 - 7). All four substances have been demonstrated to exert adverse haematological, neurological and reproduction toxic effects both in rodents and in humans. It has also been demonstrated that 2-methoxyethanol, 2-ethoxyethanol and their acetates can readily absorb through the skin (1 - 12). The concern over the use of reproduction toxic substances in the formulation of cosmetic products has been expressed in a recent Opinion of SCCNFP (13).

**5. Opinion**

The SCCNFP is of the opinion that ethoxyethanol, ethoxyethanol acetate, 2-methoxyethanol and 2-methoxyethanol acetate (glycol ethers and their acetates) do pose a health risk when used in cosmetic products.

Ethoxyethanol, ethoxyethanol acetate, 2-methoxyethanol and 2-methoxyethanol acetate (glycol ethers and their acetates) are classified as toxic to reproduction, category 2 according to Directive 67/548/EEC. As a consequence, the Opinion of SCCNFP concerning Chemical Ingredients in Cosmetic Products classified as Carcinogenic, Mutagenic or Toxic to Reproduction according to Directive 67/548/EEC (doc. n° SCCNFP/0747/01 of 25 September 2001) does apply to the above-mentioned chemicals as well.

**6. References**

1. U.S. Department of Health and Human Services (1983) The glycol ethers with particular reference to 2-methoxyethanol and 2-ethoxyethanol: evidence of adverse reproductive effects. DHHS (NIOSH), Publication No. 83-112.
2. U.S. Environmental Protection Agency (1984) Health effects assessment for glycol ethers.
3. IPCS (1990) Environmental Health Criteria 115: 2-methoxyethanol, 2-ethoxyethanol and their acetates. International Program on Chemical Safety, WHO, Geneva, Switzerland

4. U.S. Environmental Protection Agency (1993) Integrated Risk Information System (IRIS) on 2-methoxyethanol.
5. U.S. Environmental Protection Agency (1993) Integrated Risk Information System (IRIS) on 2-ethoxyethanol
6. ECETOC (1995) The toxicity of glycol ethers and its relevance to man. ECETOC Technical Report No. 64
7. Johanson G (2000) Toxicity review of ethylene glycol monomethyl ether and its acetate ester. *Crit Rev Toxicol* 30: 307-345
8. Dugard PH, Walker M, Mawdsley SJ and Scott RC (1984) Absorption of some glycol ethers through human skin *in vitro*. *Environ Health perspect* 57: 193-197.
9. Figa-Talamanca I, Cini C, Traina ME and Peterelli G (1997) Effects of glycol ethers on the reproductive health of occupationally exposed individuals: Review of present day evidence. *J Clean Technol, Environ Toxicol & Occup Med* 6: 323-337.
10. Kezic S, Mahieu K, Monster AC and de Wolff F (1997) Dermal absorption of vapours and liquid 2-methoxyethanol and 2-ethoxyethanol in volunteers. *Occup Env Med* 54 : 38-43
11. Filon FL, Fiorito A, Adami G, Barbieri P, Coceani N, Bussani R and Reisenhoefer E (1999) Skin absorption in vitro of glycol ethers. *Int Arch Occup Env Health* 72: 480-484
12. Shih TS, Wang PY, Chen CY, Smith TJ and Hu YP (2000) Measurement of percutaneous uptake of 2-methoxy ethanol vapor in humans. *J Occupat Environ Med* 42: 475-482.
13. SCCNFP (2001) Opinion concerning chemical ingredients in cosmetic products classified as carcinogenic, mutagenic or toxic to reproduction according to the chemicals Directive 67/548/EEC. SCCNFP/0474/01, Final.