Environment Canada Environnement Canada
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PRIORITY SUBSTANCES LIST ASSESSMENT REPORT

2-Butoxyethanol Addendum August 2003

Canada

ADDENDUM

A cut-off date for consideration of relevant data is specified in Assessment Reports on all Priority Substances to ensure the full evaluation of identified information through several stages of internal and external review. Information submitted following the cut-off date is considered primarily in the context of its implications for risk management or in setting priorities for conducting full reassessments at a later date.

For 2-butoxyethanol, Health Canada is pleased to acknowledge the results of additional research conducted in the period following the cut-off date for review specified in the Introduction to the Assessment Report. Preliminary review of more recent relevant published information referenced here, indicates that it potentially impacts on several areas of uncertainty delineated in this report but does not appreciably shift the weight of evidence in relation to the critical endpoint (i.e., haemolysis). Rather, it further supports the adoption in the assessment of a chemical specific adjustment factor in development of a Tolerable Concentration for this endpoint, which acknowledges quantitatively the considerable interspecies differences in sensitivity between rodents and humans to haemolysis following exposure to 2-BE (Udden, 2000, 2002).

Likewise, based on preliminary review, more recent information on potential modes of action for other effects, including those in the forestomach and liver of experimental animals, supports the lack of emphasis on these endpoints as a basis for essential conclusion in the Assessment Report (Green *et al*., 2002; Park *et al*., 2002a,b; Poet *et al*., 2003; Siesky *et al*., 2002).

These more recent data are being considered more fully in the preparation of a Concise International Chemical Assessment Document on 2-butoxyethanol by the International Programme on Chemical Safety. The output of this evaluation will be taken into account in the risk management phase under CEPA for this compound.

Also, in order to address a critical area of uncertainty indicated in the Assessment Report, further information on the presence and proportion of 2-butoxyethanol in consumer products currently available in Canada has been acquired subsequent to the cut-off date (ToxEcology, 2003). This information supports development of a much broader range of estimates of exposure and supports the degree of conservatism in the Assessment Report in which estimates of short term exposure from a small number of products are compared with the Tolerable Concentration.

Published Data on 2-Butoxyethanol Identified Subsequent to Cut-Off Date

Ghanayem B.I., S.M. Ward, B. Chanas, A. Nyska (2000). Comparison of the acute hematotoxicity of 2-butoxyethanol in male and female F344 rats. Human & Experimental Toxicology, 19: 185-192.

Green T., A. Toghill, R. Lee, R. Moore, J. Foster (2002). The development of forestomach tumours in the mouse following exposure to 2-butoxyethanol by inhalation: studies on the mode of action and relevance to humans. Toxicology, 180: 257-273.

Gualtieri J.F., M.D. DeBoer, C.R. Harris, R. Corley (2003). Repeated ingestion of 2-butoxyethanol: case report and literature review. Journal of Toxicology and Clinical Toxicology, 41(1): 57-62.

Jones K., J. Cocker, L.J. Dodd, I. Fraser (2003). Factors affecting the extent of dermal absorption of solvent vapours: a human volunteer study. Annals of Occupational Hygiene, 47: 145-150.

McKinney P.E., R.B. Palmer, W. Blackwell, B.E. Benson (2000). Butoxyethanol ingestion with prolonged hyperchloremic metabolic acidosis treated with ethanol therapy. Clinical Toxicology, 38(7): 787-793.

Park J., L.M. Kamendulis, J.E. Klaunig (2002a). Effects of 2-butoxyethanol on hepatic oxidative damage. Toxicology Letters 126: 19-29.

Park J., L.M. Kamendulis, J.E. Klaunig (2002b). Mechanisms of 2-butoxyethanol carcinogenicity: studies on Syrian hamster Embryo (SHE) cell transformation. Toxicological Sciences 68: 43-50.

Poet T.S., J.J. Soelberg, K.K. Weitz, T.J. Mast, R.A. Miller, B.D. Thrall, R.A. Corley (2003). Mode of action and pharmacokinetic studies of 2-butoxyethanol in the mouse with an emphasis on forestomach dosimetry. Toxicological Sciences, 71: 176-189.

Siesky A.M., L.M. Kamendulis, J.E. Klaunig (2002). Hepatic effects of 2-butoxyethanol in rodents. Toxicological Sciences, 70: 252-260.

Singh P., S. Zhao, B.L. Baylock (2001). Topical exposure to 2-butoxyethanol alters immune responses in female BALB/c mice. International Journal of Toxicology, 20: 383-390.

Singh P., B. Morris, S. Zhao, B.L. Baylock (2002). Suppression of the contact hypersensitivity response following topical exposure to 2-butoxyethanol in female BALB/c mice. International Journal of Toxicology, 21: 107-115.

Udden M.M. (2000). Rat erythrocyte morphological changes after gavage dosing with 2-butoxyethanol: a comparison with the *in vitro* effects of butoxyacetic acid on rat and human erythrocytes. Journal of Applied Toxicology, 20: 381-387.

Udden MM (2002). *In vitro* sub-hemolytic effects of butoxyacetic acid on human and rat erythrocytes. Toxicological Sciences, 69: 258-264.

Additional Data on Current Uses of 2-Butoxyethanol in Canada

ToxEcology. 2003. 2-Butoxyethanol and 2-Methoxyethanol. Current Use Patterns in Canada, Toxicology Profiles of Alternatives, and Feasibility of Performing an Exposure Assessment Study. Prepared under contract for Health Canada by ToxEcology – Environmental Consulting Ltd., Vancouver, B.C., Canada.

Copies of this Assessment Report are available upon request from:

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addendum

Unpublished supporting documentation, which presents additional information, is available upon request from:

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