



EUROPEAN COMMISSION
DIRECTORATE-GENERAL HEALTH AND CONSUMER PROTECTION
Directorate C – Scientific Opinions
Unit C2 – Management of Scientific Committees; scientific co-operation and networks
Scientific Committee on Toxicity, Ecotoxicity and the Environment

Brussels,
C2/JCD/csteop/**EthylacetoHH09012002/D(02)**

**SCIENTIFIC COMMITTEE ON TOXICITY, ECOTOXICITY AND
THE ENVIRONMENT (CSTEE)**

Opinion on the results of the Risk Assessment of:

Ethyl acetoacetate

CAS No.: 141-97-9
EINECS No.: 205-516-1

REPORT VERSION (Human Health)
Draft of 01.08.2001

**Carried out in the framework of Council Regulation (EEC) 793/93 on
the evaluation and control of the risks of existing substances¹**

Opinion expressed at the 29th CSTEE plenary meeting

Brussels, 09 January 2002

¹ Regulation 793/93 provides a systematic framework for the evaluation of the risks to human health and the environment of those substances if they are produced or imported into the Community in volumes above 10 tonnes per year. The methods for carrying out an in-depth Risk Assessment at Community level are laid down in Commission Regulation (EC) 1488/94, which is supported by a technical guidance document.

Terms of reference

In the context of Regulation 793/93 (Existing Substances Regulation), and on the basis of the examination of the Risk Assessment Report the CSTEE is invited to examine the following issues:

1. Does the CSTEE agree with the conclusions of the Risk Assessment Report
2. If the CSTEE disagrees with such conclusions, the CSTEE is invited to elaborate on the reasons for this divergence of opinion.

Introduction

There are currently two companies producing ethyl acetoacetate within the EU, each producing between 1000 and 5000 t/a. Ethyl acetoacetate is essentially used as an intermediate for plant production products, pharmaceuticals, stabilisers, additives, catalysts and other products (94.6%). Other uses are as a fragrant or odour agent in cleaners, washing detergents and air deodorants (3.8%) and as a solvent in paints and lacquers (1%). Ethyl acetoacetate is no longer present in most consumer products.

GENERAL COMMENTS

The database on which to perform a human effect assessment on ethyl acetoacetate is very limited. However, it is possible to support the overall conclusion ii) of the RAR given the available test results coupled with an evaluation of its metabolites.

SPECIFIC COMMENTS

Exposure assessment

During manufacturing and further processing as a chemical intermediate, average shift inhalation exposures have been estimated to be below 2.5 mg/m³ and 0.75-4 mg/m³ for manufacture of polyester paints, use as an additive in resins and hardening accelerator, both with local exhaust ventilation.

Consumer exposure and indirect exposure via the environment are estimated to be very low.

Effects assessment

There is very little toxicokinetic data available on ethyl acetoacetate. The substance may be hydrolysed in the stomach by low pH and in the intestinal tract due to bacterial activity. Enzymatic hydrolysis in the body after absorption yields 3-oxobutanoic acid and ethanol. The acid moiety is an endogenous product within lipid metabolism and further metabolised predominantly to carbon dioxide and water. Gavage administration to rats have shown that ethyl acetoacetate is also converted to acetone at up to 15% of an applied dose.

Ethyl acetoacetate is slightly irritating for the rabbit eye; no or very little dermal irritation is observed.

There are no studies of dermal sensitisation in animals. Long experience with human dermal exposure to the agent (ingredient in cosmetic nail lacquers) does not indicate skin sensitising potential.

Assessment of the toxicity of ethyl acetoacetate after repeated dose administration is limited to results from a dietary study lasting 28 days with doses corresponding to 100, 300 and 1000 mg/kg/day. There were no significant adverse effects at the highest dose.

Ethyl acetoacetate was negative in a bacterial mutation test and in an *in vitro* chromosomal aberration test. Given this and its chemical structure, there is no concern for mutagenicity.

There are no long-term studies with ethyl acetoacetate. Given the lack of indication of mutagenicity and organ toxicity, coupled with an assessment of the chemical structure and metabolic profile, there is no concern for carcinogenicity.

Ethyl acetoacetate has been tested in a reproduction/developmental toxicity screening study according to OECD Guideline 421. There were no significant effects in this study at the highest dose of 1000 mg/kg/day.

Risk characterisation

The CSTEER supports the conclusion ii) of the RAR for all industrial exposure scenarios, for consumers and for humans exposed indirectly via the environment.