

Existing Chemicals

CALCIUM SULFATE HEMIHYDRATE (PLASTER OF PARIS)

CAS No. 10034-76-1

General

Calcium sulfate hemihydrate is more commonly known either as Plaster of Paris or as gypsum. Following the addition of water the hemihydrate is converted to the dihydrate.

The Nomination and Screening Process for Existing Chemicals

Existing chemicals are those industrial chemicals available for use in Australia and listed on the Australian Inventory of Chemical Substances (AICS).

Any person or organisation with a concern about the public health, occupational health and safety, or environmental effects of an industrial chemical may nominate it for assessment. Once nominated the chemical undergoes a screening and information gathering process against set criteria and a list of 'candidate' chemicals compiled in consultation with other government agencies. Chemicals from the candidate list may be recommended for declaration as a Priority Existing Chemical (PEC) on a priority basis. If declared, a chemical enters the assessment process. Assessments may take into account all aspects of the chemical, or only cover specified issues.

Reasons for Nomination

The chemical was nominated by NICNAS because of concerns over its use in cosmetic facemasks.

Import, Manufacture and Use

NICNAS did not determine whether the chemical is produced locally or whether it is imported. No data on volumes used was obtained. However, Plaster of Paris is a common product widely used by industry and the general public. Uses stated in MSDS are castings, mouldings, tiles, stucco, wall plaster and wallboard.

Databases Searched

Following nomination, screening included the following searches:

- TOMES CPS database which is a compilation of a number of chemical, occupational and health databases (available by subscription)
- Exichem which details activities underway in OECD member states on chemicals under the OECD High Production Volume (HPV) Industrial Chemicals Program (accessed via <http://www.ois.oecd.org/exichem.nsf>)
- OECD databases (which are not available to the general public)

Existing Chemicals

- MEDLINE which is maintained by the United States National Library of Medicine and indexes articles from a large number of medical and scientific journals (accessed via <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi>)
- SciFinder® (also available by subscription).

In general, the primary sources of information during screening are the TOMES, SciFinder® and OECD databases; the other information sources are searched if no information is found in the primary sources or if a substantive review has been published by an overseas agency. Except in unusual circumstances, only abstracts of published papers are read.

Current National Occupational Health and Safety Regulations

Calcium sulfate hemihydrate is not listed in the National Occupational Health and Safety Commission's (NOHSC) *List of Designated Hazardous Substances (1999)*.

Information on the Chemical

No data on acute toxicity was found however since the chemical readily absorbs moisture and hardens, ingestion can cause physical obstruction which could require surgical intervention. An LD₅₀ of 450 mg/kg after acute oral dosing of the related dihydrate was found in the rat (TOMES). Human exposure to calcium sulfate hemihydrate has resulted in skin, eye and respiratory irritation although the respiratory irritation seems to be related to the inhalation of fibres rather than a direct chemical effect. Data on chronic exposure, genotoxicity, carcinogenicity and reproductive toxicity were not available, however the dihydrate showed genotoxic and carcinogenic properties. Crystalline silica, which is present in trace amounts in calcium sulfate hemihydrate is classified by the International Agency for Research on Cancer (IARC) as a human carcinogen and also causes the lung condition silicosis.

Outcome of the screening

Calcium sulfate hemihydrate has been used for many years and is still used extensively in both industrial and consumer areas. The available information suggests the hazards are low and it is not considered suitable for inclusion in the Candidate List for further assessment.

References

MEDLINE - US National Library of Medicine. Accessed via WebSPIRS from Silver Platter®, version 4.3 (c. 1997-2000) (Accessed 2002)

SciFinder® - American Chemical Society

TOMES CPS – Thomson Micromedex