Committee for Risk Assessment
RAC

Opinion
proposing harmonised classification and labelling
at EU level of
potassium sorbate

EC number: 246-376-1
CAS number: 24634-61-5

CLH-O-0000002524-78-03/F

Adopted
6 March 2013

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CLH-O-0000002524-78-03/F

OPINION OF THE COMMITTEE FOR RISK ASSESSMENT ON A DOSSIER PROPOSING HARMONISED CLASSIFICATION AND LABELLING AT EU LEVEL

In accordance with Article 37 (4) of (EC) No 1272/2008, the Classification, Labelling and Packaging (CLP) Regulation, the Committee for Risk Assessment (RAC) has adopted an opinion on the proposal for harmonised classification and labelling (CLH) of:

Chemicals name: Potassium sorbate

EC number: 246-376-1

CAS number: 24634-61-5

The proposal was submitted by **Germany** and received by the RAC on **14/05/2012.**

In this opinion, all classifications are given firstly in the form of CLP hazard classes and/or categories, the majority of which are consistent with the Globally Harmonised System (GHS) and secondly, according to the notation of 67/548/EEC, the Dangerous Substances Directive (DSD).

The harmonised classification proposed by the dossier submitter:

	CLP Regulation (EC) No 1272/2008	**Directive 67/548/EEC**
Current entry in Annex VI CLP Regulation	No entry	No entry
Current proposal for consideration by RAC	Skin Irrit. 2; H315 Eye Irrit. 2; H319	Xi; R36/38
Resulting harmonised classification (future entry in Annex VI of CLP Regulation)	Skin Irrit. 2; H315 Eye Irrit. 2; H319	Xi; R36/38

PROCESS FOR ADOPTION OF THE OPINION

Germany has submitted a CLH dossier containing a proposal together with the justification and background information documented in a CLH report. The CLH report was made publicly available in accordance with the requirements of the CLP Regulation at ***http://echa.europa.eu/harmonised-classification-and-labelling-consultation*** on **14/05/2012**. Concerned parties and Member State Competent Authorities (MSCA) were invited to submit comments and contributions by **28/06/2012**.

ADOPTION OF THE OPINION OF THE RAC

Rapporteur, appointed by RAC: **Teresa Borges**

Co-rapporteur, appointed by RAC: **Annick Pichard**

The opinion takes into account the comments provided by MSCAs and concerned parties in accordance with Article 37(4) of the CLP Regulation.

The RAC opinion on the proposed harmonised classification and labelling was reached on **6 March 2013** and the comments received are compiled in Annex 2.

The RAC Opinion was adopted by **consensus**.

OPINION OF THE RAC

The RAC adopted the opinion that potassium sorbate (potassium (E,E)-hexa-2,4-dienoate) should be classified and labelled as follows:

Classification and labelling in accordance with the CLP Regulation

Index No	International Chemical Identification	EC No	CAS No	Classification		Labelling			Specific Conc. Limits, M-factors	Notes
				Hazard Class and Category Code(s)	Hazard statement Code(s)	Pictogram, Signal Word Code(s)	Hazard state-ment Code(s)	Suppl. Hazard statement Code(s)		
019-003-00-3	potassium (E,E)-hexa-2,4-dienoate	246-376-1	24634-61-5	Eye Irrit. 2	H319	GHS07 Wng	H319			

Classification and labelling in accordance with the criteria of DSD

Index No	International Chemical Identification	EC No	CAS No	Classification	Labelling	Concentration Limits	Notes
019-003-00-3	potassium (E,E)-hexa-2,4-dienoate	246-376-1	24634-61-5	Xi; R36	Xi R: 36 S: (2-)46		

SCIENTIFIC GROUNDS FOR THE OPINION

Evaluation of skin corrosion/irritation

Summary of the Dossier submitter's proposal

The CLH report included a Draize test conducted in rabbits (OECD 404) with 3333 mg/ml potassium sorbate (potassium (2E, 4E)-hexa-2,4-dienoate), purity > 99%) in 0.9% aqueous NaCl, vehicle solution (Hofman, 1987) that was found to be non-irritant. The DS based the justification for classification of the skin irritation effects of potassium sorbate by reading-across from sorbic acid and associated human skin reactions i.e NICU (non-imunological contact urticaria) extensively referenced in the CLH report, as well as a human case report on the development of contact dermatitis from exposure to airborne potassium sorbate powder (Le Coz & Abensour, 2005) and the findings in the medical surveillance report on workers exposed to sorbic acid in a potassium sorbate production facility (Astvad, 2004). These positive skin reactions and effects reported in referenced sources mentioning sorbic acid as a potent contact skin irritant were extrapolated to the substance of interest, potassium sorbate, and considered as part of the weight of evidence approach justifying the classification for irritation
Therefore based on experience in humans, the dossier submitter proposes a classification for potassium sorbate as Skin Irrit. 2 – H315 under the CLP Regulation (Xi; R38 according to DSD).

Comments received during public consultation

Comments were received from three Member States, supporting the proposed classification for skin irritation.

Assessment and comparison with the classification criteria

The RAC noted several issues of concern regarding the classification proposed.

- The reliability of the human studies on the potassium sorbate was uncertain, i.e. Le Coz et Abensour (2005) was not very well documented specifically regarding exposure. For Astvad (2004), it was not possible to gain access to the unpublished document.
- The proposed classification as skin irritant appears to have already been implemented by industry
- The read across of potassium sorbate from sorbic acid may be questionable
- Hofmann, T (1987,unpublished) performed a Draize test according to OECD guidelines 404 using 3333 mg/ml potassium sorbate in 0,9% aqueous NaCl, in 3 albino New Zealand rabbits (sex not mentioned). After 24h and 48 h, no erythema and oedema were observed and the authors concluded that potassium sorbate was not irritating.

The justification for the classification as Skin Irrit. 2 – H315 proposed by the DS is based on human data with sorbic acid and extrapolation to potassium sorbate.

The RAC pointed out that direct comparison with the classification criteria as referred to in table 3.2.2. of Annex I to the CLP Regulation, is not possible for human data. However, he use of human data is discussed in general in paragraphs 1.1.1.3., 1.1.1.4., 1.1.1.5. of Annex I to the CLP Regulation where it is mentioned that all available information on the determination of hazard should be considered together (WoE), such as animal data, category approach (read-across, grouping), human experience such as occupational data, clinical studies, well documented case reports and observations, so that negative and positive findings shall be assembled together in a single weight of evidence determination. It is also stated that adequate, reliable and representative data on humans shall have precedence over other data. However, it is also mentioned that the quality and robustness of these studies need to be evaluated i.e. including confounding factors as well as the relevance for humans in terms of route of exposure and mechanism of action. The CLP Regulation also recommends that human data be evaluated with caution because these are not generated under controlled conditions for the purpose of hazard

classification but rather as part of the risk assessment to confirm lack of effects seen in animal tests.

Taking all the information available in the dossier together, the RAC considered that:

- reading-across from the free acid to the sorbate anion can be generally accepted. However concerning the specific endpoint of skin irritation, consideration has to be given to the Draize study with rabbits performed with potassium sorbate according to OECD 404 and which showed negative results.
- the reliability of the human cases reported with potassium sorbate (Le Coz & Abensour, 2005) is insufficient, namely in relation to the accurate identification of the substance of interest, description of the exposure conditions and assessment of confounding factors (i.e. moistened skin, mixed exposure). This leads to uncertainty as to whether and to what extent the effect (NICU contact dermatitis) and its magnitude can be reliably attributed to the intrinsic properties of potassium sorbate.
- as a charged molecule, potassium sorbate is expected to penetrate the skin less readily. Therefore read-across from sorbic acid skin irritation effects is considered to overestimate the hazard.

Considering the above weight-of-evidence, the RAC concluded that the criteria for classification of potassium sorbate for skin irritant effects are not met and that no classification is warranted.

Evaluation of eye irritation

Summary of the Dossier submitter's proposal

The Dossier submitter proposed classification as Eye Irrit. 2 – H319 - "irritating to eyes" according to CLP (Xi; R36 according to DSD) for potassium sorbate based on the OECD 405 animal study by Hofmann & Jung, 1987. The ocular lesions observed are described below.

Comments received during public consultation

Comments were received from three Member States, supporting the proposed classification for skin irritation.

Assessment and comparison with the classification criteria

The justification for classification as "irritating to eyes" Xi; R36 under DSD and Eye irrit 2; H319 under CLP was obtained from the rabbit study by Hofmann & Jung, 1987, with potassium sorbate without a vehicle and with wash-out 24h after application, where the eye irritant effects observed showed a positive reaction in terms of conjunctival redness (individual scores > 2) and conjunctival oedema (individual scores ≥ 2) for 2 of 3 and 3 of 3 test animals, respectively. These ocular lesions were reversible within 21 days following application. Therefore, they did not trigger the more stringent classification of Eye Dam. 1.

The RAC agrees with the dossier submitter's proposal to classify potassium sorbate as Eye irritant 2 –H319 under CLP (Xi: R36 under DSD).

ANNEXES:

Annex 1 Background Document (BD) gives the detailed scientific grounds for the opinion. The BD is based on the CLH report prepared by the dossier submitter; the evaluation performed by the RAC is contained in RAC boxes.

Annex 2 Comments received on the CLH report, response to comments provided by the dossier submitter and the RAC (excl. confidential information).