

Peter H. Schaarup

Fra: Louise Grave-Larsen
Sendt: 26. januar 2015 14:32
Til: Peter H. Schaarup
Emne: VS: LOUS Review - Public Consultation comments from IMO A on 'Survey of Molybdenum Trioxide'

Prioritet: Høj

Høringsvar fra the International Molybdenum Association

Fra: Sandra Carey [mailto:sandracarey@imoa.info]
Sendt: 23. januar 2015 14:06
Til: Louise Grave-Larsen
Cc: Frans Christensen
Emne: LOUS Review - Public Consultation comments from IMO A on 'Survey of Molybdenum Trioxide'
Prioritet: Høj

Dear Louise

This E-mail refers to the Public Consultation Version of the 'Survey of Molybdenum Trioxide' draft report which is part of the LOUS review. Frans Christensen of COWI, with whom we have corresponded earlier in the process, indicated that we should sending any remaining comments to yourself, with cc to him. In that respect, please see our remarks below for your kind consideration:

Two of our International Molybdenum Association members have requested further clarity for readers of page 44: Section 4.3 'Recycling and material recovery'. The lower part of its paragraph one, and paragraph two states:

"According to Blossom (2002), alloy and stainless steel constitute a considerable source of molybdenum scrap in the US. Although molybdenum is not recovered separately from scrap steel and super alloys containing it, recycling of these alloys is significant in ensuring reuse of the molybdenum contained therein. Material recovery of molybdenum occurs primarily from metal scrap (e.g. alloys) and spent catalysts.

This may involve roasting of the scrap in an oxidizing atmosphere at around 600 °C followed by leaching in dilute sulphuric acid to dissolve molybdenum and other metals. Subsequently, the metals from the leachate solution are separated by e.g. filtration, precipitation and/or solvent extraction(e.g. Ference & Sebenik, 1982)."

Below we suggest wording that makes a clearer separation of recycling routes between what happens with Mo-containing metal scrap, and what happens in the process for recovering molybdenum from spent catalysts, as follows:

"According to Blossom (2002), alloy and stainless steel constitute a considerable source of molybdenum scrap in the US. Although molybdenum is not recovered separately from scrap steel and super alloys that contain it, recycling of these alloys is significant in ensuring reuse of the molybdenum they contain. Material recovery of molybdenum occurs primarily from metal scrap (e.g. alloys) and spent catalysts.

In the case of metal scrap, simple alloys, Mo-containing stainless steels and scrap blends are re-melted during the scrap melting process and then added back into the steel-making process. Spent catalysts can be roasted in an oxidizing atmosphere followed by leaching to dissolve molybdenum and other metals. The metals in the leachate solution are then separated by e.g. filtration, precipitation and/or solvent extraction (e.g. Ference & Sebenik, 1982)."

Page 7, paragraph 6: Given that readers of this on-line document could be from anywhere in the world, we feel it would enhance clarity if the abbreviation 'EU' is inserted into this sentence, (and elsewhere in the document e.g.

page 10 where similar statements are made): *Pure grade molybdenum trioxide is subject to EU harmonized classification*

IMOA's Molybdenum chemist, Professor Philip Mitchell, has also made some remarks and suggested some slight rephrasing for optimal accuracy:

Remark about Page 7, first paragraph : Strictly speaking, pure molybdenum trioxide is white, not white-yellow or bluish. A blue colour indicates some superficial reduction.

Page 7, paragraphs 4 and 5. Below is Professor Mitchell's suggested rephrasing:

Molybdenum trioxide is a source of molybdate ions (MoO_4^{2-}). In the environmental and toxicological literature the word 'molybdenum' is used generically for molybdenum-containing species when what is being referred to is the molybdate ion (not the metal). This, if not explicitly stated, can be inferred from the context. In relation to legislation addressing waste, emissions and chemicals in environmental media, the review has therefore included legislation referencing "molybdenum".

Similarly, in addition to discussing data on molybdenum trioxide specifically, the chapters on health and environment refer also to molybdenum/the molybdate ion" as the species responsible for ecotoxicity and systemic human toxicity.

Page 7, Final sentence of paragraph 6: Suggest to add "(see Section 6.1.1 for further details)", so that the sentence reads: However, the technical grade has not been classified for respiratory irritation and serious eye irritation, as the REACH Molybdenum Consortium disagrees with this classification (see Section 6.1.1 for further details).

Page 10: Paragraph 4 states: "This may lead to copper deficiency (especially when sulphate intake is insufficient)" . To be consistent with existing literature the phrase in brackets should say: ... (especially when sulphate intake is high).

If you wish to check existing literature sources you may wish to visit this

page: http://www.imoa.info/HSE/environmental_data/biology/copper.php.

We trust that you find the above comments useful and request your kind consideration to take them into account for the final version of the draft report.

Please acknowledge safe receipt of this E-mail.

Best regards.

Sandra

Sandra Carey

HSE Executive



INTERNATIONAL MOLYBDENUM ASSOCIATION
THE VOICE OF THE MOLYBDENUM INDUSTRY

IMOA, 454-458 Chiswick High Road, London, W4 5TT, United Kingdom

Direct: +44 (0) 7778 813721 **Fax:** +44 20 87420128

IMOA Website: www.imoa.info

MoCon Website: www.molybdenumconsortium.org

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