6/1/2010

Review: NIOSH Skin Notations Review - Group A
Profile Number: 02
Profile Title: Phenol

Summary

Both reviewers agree that the document clearly outlines the systemic health hazards, direct health hazards, and immune mediated responses associated with dermal exposure to phenol. There are no suggested changes; all is clearly and appropriately described. Reviewers are not aware of additional scientific data and agree with the rationale that serves as basis for the skin notation assignments.

Verbatim Reviewer Comments

1. Does this document clearly outline the systemic health hazards associated with exposures of the skin to the chemical? If not, what specific information is missing from the document?

Reviewer 1:
Systemic toxicity resulting from skin exposure to phenol is clearly discussed in this document. Several toxicokinetic studies are described that show phenol absorption through the skin of humans. In addition, studies are presented that show phenol is absorbed through the skin of experimental animals. The SI ratio for phenol is presented. How this value indicates that skin absorption is expected to contribute to the body burden of phenol is clearly explained. Case studies and animal studies are presented that show that exposure of skin to phenol can lead to severe acute toxicity that can progress to respiratory depression, cardiac arrest and death. Also, this document describes studies that provide evidence for systemic toxicity following repeated occupational dermal exposures to phenol.

Reviewer 2:
This is a well prepared document clearly outlines the systemic health hazards associated with exposures of the skin to phenol. No specific information is missing.

2. If the SYS or SYS (FATAL) notations are assigned, is the rationale and logic behind the assignment clear? If not assigned, is the logic clear why it was not (e.g., insufficient data, no identified health hazard)?

Reviewer 1:
The SK:SYS (FATAL) notation is assigned to phenol. This document provides clear rationale and logic for making this assignment. The data presented supports this conclusion.

Reviewer 2:
Yes, SYS and SYS (Fatal) notations are assigned and the logic behind the assignment is clear.

3. Does this document clearly outline the direct (localized) health hazards associated with exposures of the skin to the chemical? If not, what specific information is missing from the document?

Reviewer 1:
Numerous studies in humans and animals are presented in this document that show the corrosive nature

of phenol when skin contact occurs. The mechanism of coagulation necrosis that causes the corrosive effect to the skin is described.

Reviewer 2:
Yes, the document clearly outlines the direct (localized) health hazards associated with exposure of the skin to phenol.

4. If the DIR, DIR (IRR), or DIR (COR) notations are assigned, is the rationale and logic behind the assignment clear? If not assigned, is the logic clear why it was not (e.g., insufficient data, no identified health hazard)?

Reviewer 1:
The rationale and logic behind assigning the SK:DIR (COR) notation is provided in this document. The data presented supports this conclusion.

Reviewer 2:
SK:DIR notation is assigned and the rationale and logic behind such notation is well explained.

5. Does this document clearly outline the immune-mediated responses (allergic response) health hazards associated with exposures of the skin to the chemical? If not, what specific information is missing from the document?

Reviewer 1:
Two studies are described that show negative results for skin sensitization following skin contact with phenol. Also, using chemical structure, DEREK predicts no sensitization. Based on these findings, the document concludes that phenol is not a skin sensitizer.

Reviewer 2:
Yes, this document clearly outlines the immune-mediated responses which has been assessed only in a limited number of studies.

6. If the SEN notation is assigned, is the rationale and logic behind the assignment clear? If not assigned, is the logic clear why it was not (e.g., insufficient data, no identified health hazard)?

Reviewer 1:
The rationale and logic for not assigning SK:SEN is clearly discussed in this document.

Reviewer 2:
It is explained why NIOSH does not assign an SK:SEN notation for phenol.

7. If the $ID^{(SK)}$ or ~~SK~~ were assigned, is the rationale and logic outlined within the document?

Reviewer 1:
These notations were not assigned to phenol within this document.

Reviewer 2:
This notation is not assigned.

8. Are the conclusions supported by the data?

Reviewer 1:
The data supports the conclusions in regards to the notations assigned to phenol by this document.

Reviewer 2:
Yes, the conclusions reached in the document are supported by the data and its critical analysis.

9. Are the tables clear and appropriate?

Reviewer 1:
The tables are clear and appropriate.

Reviewer 2:
All Tables are clear and are appropriate.

10. Is the document organized appropriately? If not, what improvements are needed?

Reviewer 1:
This document is well organized.

Reviewer 2:
The document is well organized.

11. Is the language of the manuscript acceptable as written? If not, what improvements are needed?

Reviewer 1:
The language used in this manuscript is both clear and concise.

Reviewer 2:
The language as written is acceptable.

12. Are you aware of any scientific data reported in governmental publications, databases, peer reviewed journals, or other sources that should be included within this document?

Reviewer 1:
I am not aware of any additional scientific data that should be included in this document.

Reviewer 2:
Data included are from a large body of literature available about the effects of phenol and skin and is acceptable.

13. What is your final recommendation for this manuscript? (Do you agree with the scientific rationale that serves as a basis for the skin notation assignments?)

Reviewer 1:
I recommend that this manuscript be accepted as the final "SK Profile for Phenol".

Reviewer 2:
My final recommendation is approval of this manuscript as presented.