

Decision POPRC-1/7: Perfluorooctane sulfonate

The Persistent Organic Pollutants Review Committee,

Having examined the proposal by Sweden, which is a Party to the Stockholm Convention on Persistent Organic Pollutants, to list perfluorooctane sulfonate and ninety-six potential perfluorooctane sulfonate precursors in Annex A to the Convention and having applied the screening criteria specified in Annex D to the Convention,

Noting that the perfluorooctane sulfonate anion does not have a Chemical Abstracts Service number and does not appear as an anion in the environment, but that the perfluorooctane sulfonate acid and its salts listed in the proposal have the following Chemical Abstracts Service numbers:

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|-----|---------------------|------------|
| (a) | Acid | 1763-23-1 |
| (b) | Potassium | 2795-39-3 |
| (c) | Lithium | 29457-72-5 |
| (d) | Ammonium | 29081-56-9 |
| (e) | Diethanolamine salt | 70225-14-8 |

1. *Decides*, in accordance with paragraph 4 (a) of Article 8 of the Convention, that it is satisfied that the screening criteria have been fulfilled for perfluorooctane sulfonate, as set out in the evaluation contained in the annex to the present decision;

2. *Decides also*, in accordance with paragraph 6 of Article 8 of the Convention and paragraph 29 of decision SC-1/7 of the Conference of the Parties to the Stockholm Convention, to establish an ad hoc working group to review the proposal further and to prepare a draft risk profile in accordance with Annex E to the Convention;

3. *Decides further* that issues related to the inclusion of potential perfluorooctane sulfonate precursors should be dealt with in developing the draft risk profile;

4. *Invites*, in accordance with paragraph 4 (a) of Article 8 of the Convention, Parties and observers to submit to the Secretariat the information specified in Annex E before 27 January 2006.

Annex to decision POPRC-1/7

Evaluation of perfluorooctane sulfonate against the criteria of Annex D

A. Background

- The primary source of information for the preparation of this evaluation was the proposal submitted by Sweden, contained in document UNEP/POPS/POPRC.1/9.
- Additional sources of scientific information included critical reviews prepared by recognized authorities and peer-reviewed scientific papers.

B. Evaluation

- The proposal was evaluated in the light of the requirements of Annex D, regarding the identification of the chemical (paragraph 1 (a)) and the screening criteria (paragraphs 1 (b)–(e)):

(a) Chemical identity:

- Adequate information was provided in the proposal covering the acid and some salts;
- The chemical structure of the potassium salt was provided;

The chemical identity of perfluorooctane sulfonate is clearly established. The proposal includes perfluorooctane sulfonate, the acid and its salts;

(b) Persistence:

- (i) None of the tests for degradation (hydrolysis, photolysis, and biodegradation) showed any indication of degradation of PFOS in aquatic or soil systems (Ref. 1);
- (ii) Monitoring data confirm the persistence of PFOS in environmental compartments (Ref. 1);

There is sufficient evidence that PFOS meets the persistence criterion;

(c) Bioaccumulation:

- (i) Bioconcentration factor values for PFOS are lower than the screening criteria (in the range of 240–1,300 for steady-state conditions and up to 2,796 using kinetic estimation) (Ref. 1); PFOS is a surface active substance and, as a result, octanol-water partition coefficient measurements are not relevant (Ref. 2). Bioconcentration factor values are not good predictors of bioaccumulation for this substance because food uptake has been demonstrated to be a relevant route for aquatic organisms (Ref. 3). Bioaccumulation is not related to the lipophilicity and the accumulation does not primarily occur in lipid tissues;
- (ii) Toxicokinetic studies in aquatic and terrestrial vertebrates show very low elimination rates (Refs. 1 and 4). In addition, PFOS has shown developmental effects in mammals at low levels (no observed adverse effect level (NOAEL) value of 0.1 mg/kg body weight/day in rats in a two-generation study) (Ref. 1);
- (iii) Monitoring data confirm the bioaccumulation and biomagnification of PFOS in both terrestrial and marine mammals (Ref. 4);

There is sufficient evidence that PFOS meets the bioaccumulation criterion;

(d) Potential for long-range environmental transport:

- (i) and (ii) Extensive monitoring data, including at sites remote from known sources, show that long-range environmental transport has occurred (Ref. 1);
- (iii) The estimated half-life in air is 114 days (Ref. 4);

There is sufficient evidence that PFOS meets the criterion on potential for long-range environmental transport;

(e) Adverse effects:

- (i) No evidence provided;
- (ii) PFOS has been shown to cause developmental effects in mammals at low levels. It is also toxic to aquatic organisms (Ref. 4);

There is sufficient evidence that PFOS meets the adverse effects screening criterion.

C. Conclusion

4. The Committee concluded that PFOS meets the screening criteria specified in Annex D.

References

1. *Cooperation on Existing Chemicals – Hazard Assessment of Perfluorooctane Sulfonate (PFOS) and its Salts*. OECD. Paris. 2002.
2. UNEP/POPS/POPRC.1/9.
3. Kannan, K., Tao L., Sinclair, E., Patsva, S.D., Jude, D.J., Giesly, J.P., *Archives of Environmental Contamination Toxicology* 48(4), 559–566. 2005.
4. *Environmental Risk Evaluation: Perfluorooctane Sulfonate (PFOS)*. United Kingdom Environment Agency. London. 2004.