Comments on

"Draft Guidelines on Best Available Techniques for Pulping Processes"
(UNEP/POPS/EGB.2/INF/5
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by

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General Comments

While the author made considerable effort to be as comprehensive as possible in preparing this guidelines document, in our view this unfortunately led to a loss of focus and clarity. Our general overall comment on the document is that it tends to be too diverse both in terms of the target areas within pulp and paper mills and the guidelines provided for minimizing the formation and release of unintentionally-produced Persistent Organic Pollutants (UPOPs).

According to the title of this document, we understand that it is intended to provide guidelines with respect to "pulping processes". Strictly speaking, in our mind pulping processes would refer to pulping methods as described in section 1.6. Although one could perhaps broaden "pulping processes" to also include bleaching processes as described in section 1.7 and certainly would need to do so in order to effectively address the UPOPs, it would appear to be beyond the scope of these guidelines to include other areas of mill operations such as recycling and emissions to air from recovery and power boilers. If necessary, the latter could be the subject of a separate guidelines document.

Again, with respect to the guidance provided for limiting the release of UPOPs from pulping processes, we consider the document as being too diverse with its rather lengthy list of technology recommendations, not all of which are essential or are of questionable value in controlling the formation of UPOPs. For example, the guidelines mention the following as specific measures and techniques, all of which apply to areas other than the bleach plant, which a mill could implement in order to influence the emissions of UPOPs:

- Promoting the degree of delignification in the cooking processes through
    - Chip handling and preparation
    - Use of cooking catalysts
    - Extended (modified) cooking
- Reducing the carry over of lignin degradation products to the bleaching process through
    - Closed screening
    - Use of low precursor defoamers
    - Efficient washing
- Continuing the delignification process using oxygen delignification
- Enzyme pre-treatment
- Hexeneuronic acid removal
- Biological treatment, and
- Control sludge disposal

A mill could implement ALL of the above, which, while apt to reduce the general organic load to the environment, are not critical for controlling the release of UPOPs. Unless the mill makes modifications to its bleaching process to reduce or eliminate the use of elemental chlorine for pulp bleaching, such measures as above, implemented at considerable expense, would be relatively ineffective in controlling the production and release of UPOPs.

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Instead the document would provide better guidance by focusing on those key measures and techniques which have been established as being critical for the effective control of the releases of UPOPs. As established through our research[1], the heart of any control technology for minimizing the release of UPOPs are modifications to a mill's bleaching process to reduce or eliminate the use of elemental chlorine for pulp bleaching, namely, through:

- Reduced application of molecular chlorine in the first stage of bleaching via decreasing the chlorine multiple and increased substitution with chlorine dioxide, and, most effectively, through
- Elimination of molecular chlorine through replacement with chlorine dioxide, so-called Elemental Chlorine-Free (ECF) bleaching, or oxygen-based chemicals, such as ozone, commonly referred to as Totally Chlorine-Free (TCF) bleaching.

Supplementary measures[1] such as the following, while not effective on their own in controlling the release of UPOPs, help to provide a margin of safety that changes in the bleaching process as described above will be effective in minimizing or eliminating the release of UPOPs:

- Utilize DBD and DBF precursor-free defoamers
- Effective brown stock washing
- Elimination of wood chips contaminated with polychlorinated phenols

In summary, we have offered some suggestions for focusing the document better which we feel would help to make it a clearer and more effective guidance document.

[1] Berry, R., "Dioxins and Furans in Effluents, Pulp and Solid Waste", Chapter 3, Section VIII in Pulp Bleaching – Principles and Practice. Dence C. and Reeve, D.W. (Ed.) Tappi Press (1996)

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