

ANTIMONY DAY CONF 2019: No alternative for antimony trioxide in flame retardants, delegates say

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Published: Thursday, 10 October 2019

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The third edition of the Antimony Day Conference hosted last week by the International Antimony Association in Antwerp, Belgium, pointed out the challenges the industry faces at a time of increasing scrutiny for this speciality chemical.

By Cristina Belda

Concerns about the potentially carcinogenic effects of antimony trioxide on human health have fueled the debate about whether to remove the material from flame retardants in North America and Europe since 2016, when the United States National Toxicology Program (NTP) found that it might cause cancers in humans.

The European Union's Registration, Evaluation, Authorization and Restriction of Chemicals regulations (REACH) have arrived at a new phase of the substance evaluation process. At this stage, which will start by the end October 2019, member states will evaluate antimony trioxide to ascertain whether its use poses a risk to human health or to the environment.

Antimony has been also shortlisted for consideration by the Restriction of Hazardous Substances (RoHS2) directive by the European Commission.

Under RoHS2, member states must ensure that certain substances are not present in electronic and electrical equipment placed on the EU market in concentrations above a maximum value. Metals such as lead, mercury and cadmium fall under this regulation.

The effect of a possible reclassification for antimony has not yet been objectively valued, but it is expected to be significant, due to the lack of a clear alternative for flame-retardant additives, sources at the conference told Fastmarkets.

"Developing alternatives [for antimony trioxide] and [setting up] feasible projects could take at least a decade," Adriana Jalba, Director Advocacy EU at ICL, said. "You have to look at the compatibility between materials and applications [on a case-by-case basis]."

Zinc borates and zinc stannates can sometimes substitute for antimony trioxide but only in certain formulations.

Possible substitution for antimony trioxide has been explored in textiles and electronics but no viable substance has been found yet, a member of the International Antimony Association (i2a) secretariat told Fastmarkets.

The i2a made a point of demonstrating that the risks associated with antimony use were both low and manageable.

"It is even more important to look at the safety of antimony use rather than at intrinsic hazardous properties, which occur in quite unrealistic conditions," the i2a said.

Speakers at the event also highlighted the need to include end-of-life and recycling products in the formulation of any new regulations.

"Recyclability needs to be taken into account if you want to introduce something new," according to Chris Slijkhuis from the Müller-Guttenbrunn Group (MGG), who is also a board member of the European Electronics Recyclers Association.

Any rushed decision could cause regrettable substitution effects which would go against the Circular Economy principle, he said.

"Let's make sure that the legislation in process does not stop recycling but promotes it," he added. "Recycling is a very high-tech industry in Europe and [in the case of antimony] can be done safely despite the hazardous nature of various compounds."

The industry also called for harmonized global regulations and a coherent framework in which improvements can be made on a global scale.

"Legislation should be as aligned as possible because antimony trioxide has a very complex value chain," Julian Lageard, Intel's director for government, markets & trade, Europe, Middle East and Africa, said.

"There are currently 40 different jurisdictions [worldwide] for this substance," he added. "For us, it is a nightmare to coordinate it on a global level."

Several countries had chosen to model their laws on EU RoHS but there were significant differences in scope and implementation.

During the conference, representatives from the European Commission encouraged participants to submit information from every step along the value chain.

For its part, the i2a has developed a methodology to monitor workplace exposure and it is investing in research into the toxicology of several antimony compounds, to ensure the safe use of antimony substances throughout their lifecycle.

For the time being, potential restrictions have not affected the price of antimony. Fastmarkets assessed the price of antimony trioxide, min 99.5% Sb₂O₃ min, in-whs Antwerp/Rotterdam, at €5.25-5.40 (\$5.76-5.93) per kg on October 8. The price has been unchanged since August 27 on thin trading and unexpectedly slow demand.

Global production of antimony trioxide came to almost 110,000 tonnes per year, with China the largest single producer.