



© Laurentin Jondache



BAD NEWS FOR Biocide?

BY NANCY DEMARCO

In early April, the National Academies of Science's National Research Council released a scathing review of the U.S. Environmental Protection Agency's draft assessment of the health effects of formaldehyde exposure. EPA's document "needs improvement," the NAS declared.

Although the NAS review concluded that EPA's report needs major revisions, it found that EPA substantiated its conclusion that formaldehyde exposure can cause cancers of the nose, nasal cavity and upper throat.

Health effects of formaldehyde exposure, and regulations to protect workers and consumers from those effects, are compelling issues for the metalworking fluid industry. Formaldehyde-releasing chemistries are very cost-effective biocides and have been used for decades.

The most common formaldehyde-donor chemistry is triazine, also known as hexahydrotriazine or HHT, explained Phil Miller, Lubrizol's global compliance manager for metalworking fluid additives, based in Spartanburg, S.C. However, HHT is only one of many EPA-registered formaldehyde condensates currently used in the metalworking industry.

Every chemical has some degree of risk, but risk is a function of both hazard and exposure, said Miller. "Controlling exposure to formaldehyde from its condensates used as antimicrobial agents in metalworking fluids is a key factor."

ALPHABET SOUP: EPA, NAS & ROC
EPA's draft assessment, published a year ago, attributed a range of cancerous and noncancerous effects



to formaldehyde. These included leukemia and lymphoma, asthma, harm to the nervous system and adverse reproductive outcomes, as well as respiratory tract cancers.

Not so fast, said NAS. After finding clear support only for EPA's conclusions regarding nasal cancer, NAS has recommended that EPA revisit, revise and reedit its assessment.

Further complicating the picture, however, is the anticipated imminent release of the U.S. Health and Human Services Department's 12th Report on Carcinogens, or "12th RoC." The National Toxicology Program at HHS nominated formaldehyde for reclassifi-

cation in the 12th RoC as a human carcinogen — a change from its current listing in the 11th RoC as "reasonably anticipated to be a human carcinogen."

"EPA has had concerns about formaldehyde toxicity in metalworking fluids, and in 2009 wanted to reduce levels to 500 ppm," said Adrian Krygsman, director of product registration at Troy Corp. in Florham Park, N.J. "EPA and industry agreed to await the NAS review, that EPA would regulate for chronic and nonchronic effects based on the review."

Krygsman summarized the NAS conclusions: EPA was not transparent; EPA should utilize the best science; evidence



did not support many EPA conclusions; yes, there is evidence of nasal cancer; but blood cancers are not supported.

“The NAS review is not a death knell for triazine and other formaldehyde-donor chemistries,” Krygsman continued. “It means EPA cannot regulate as it wanted to. The NAS report is very important. EPA must reevaluate the cancer potential of HHT, and must recalculate thresholds using a newer dose response model. So there is hope for triazine as a tool for the metalworking fluid industry.

“A worker may breathe formaldehyde, but at low levels, the new model confirms this does not cause cancer.”

The Department of Health and Human Services had planned to rely on the NAS review for its 12th RoC nomination of formaldehyde, said Krygsman. “If formaldehyde is listed as a human carcinogen — and it will depend on how it’s listed — it will have an impact on thresholds.”

Industry hopes the NAS review will cast doubt, and HHS will keep the same language for formaldehyde in the 12th RoC as appeared in the 11th RoC, he added.

WHAT’S A BLENDER TO DO?

“We’re addressing it,” said William L. ‘Lon’ Fanning, lab director and vice president of fluid manufacturer Perkins Products in Bedford Park, Ill. “Triazine is absolutely one of the most cost-effective biocides; compared to other products it’s relatively safe and much cheaper. But everybody is moving away from formaldehyde-release biocides. We want to give our customers options. Everyone has triazine-free products in the mix.”

“We hope EPA will not rush to judgment and will take NAS’ input,” commented Eugene M. White, manager of environmental health and safety at Milacron Marketing Co. in Cincinnati, Ohio. “I read NAS’ comments and thought they’re right on. I hope EPA will modify and give more thought to its report.

“It’s not a reprieve for triazine. If EPA comes out with a definitive statement [on formaldehyde], it would have rami-

fications for triazine,” White continued. “The issue is still in play; it remains to be seen how EPA will react. We’re in a waiting mode now, waiting for the other shoe to drop.

“I haven’t seen a move away from triazine. Industry is flexible and proactive. Industry will be resilient,” he concluded. “Industry can come up with alternate formulations. People won’t wait for EPA. We’re always looking for better and safer formulations. But there is no change in the use of triazine so far.”

WHAT NEXT?

One biocide supplier, Memphis, Tenn.-based Buckman USA, has decided not to continue supplying its triazine-based biocide Busan to the metalworking fluid industry. “We are not re-registering it for use in metalworking fluids,” said Market Manager Cheryl French. “We’re still active with other products for metalworking fluids, but our Busan 1060 inventory labeled for metalworking fluid use has been sold, and none is now available.”

The reason, French explained, was re-registration costs. “It was not economically sound for us,” French said. “Other companies may make the same decision.”

“We are waiting for the next shoe to drop, the 12th RoC,” Troy’s Krygsman said, echoing Eugene White. “NAS has said the EPA studies did not support its conclusions. For metalworking fluids, the NAS report is a reprieve. I think ultimately EPA will rewrite its report.”

But the question remains, he said: How will EPA regulate formaldehyde? “With regulation, products drop by the wayside. Without low-cost triazine, the formulator’s tool chest gets a lot smaller,” Krygsman cautioned.

“Metalworking formulators are staying with triazine as long as they can,” agreed Lubrizol’s Miller. Blenders will need to make informed choices and to educate their customers about the relatively low risks of triazine. And they might consider using formaldehyde-releasing biocides that contain lower amounts of formaldehyde or slower release rates. ■