

Checking In

EDITOR'S NOTE *Pumps & Systems* is interested in all types of questions, comments, problems/solutions for our **Checking In** column. Note that we reserve the right to edit letters for clarity and brevity. Contact our editorial department at:

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And Another Lubrication Question. . .

I've read the recent feedback, including the piece [*Feedback*, p. 8, May 2002] from Mr. Douglas C. Branham about an article written by Mr. Heinz P. Bloch, titled, "Basic Lubrication Knowledge Challenged." I agree with Douglas that oil/air mist lubrication systems are the way to go. I've seen dramatic bearing-temperature reductions, some by as much as 40°F in overall operating temperatures.

However, I'd like to ask Douglas to confirm whether or not oil/air mist systems are acceptable by OSHA? We've had some feedback that oil-mist systems are a pollutant, where the misted bearings (mostly vented to atmosphere) can contain some unused percent of atomized petroleum residue. Therefore, it's a contaminant which OSHA might frown upon.

I'd appreciate anything positive (hopefully written and approved by reputable organizations) that says anything positive about oil-mist systems. I know for a fact that we've seen dramatic bearing-heat reduction using oil-mist systems. This leads to longer operating performance and far less repair cost.

What I need is an ISO Standard, MIL/DOD or NAVSEA regulation that approves and covers such oil/air mist system acceptance and/or requirement. Don't oil/air mist systems always need instrument air to function properly?

Regards,
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Doug Branham, Lubrication & Reliability Manager at Lubrication Systems Company, in Houston, was happy to respond:

Oil mist lubrication is a suspension of droplets of oil, 1 to 3 microns in size. It is used primarily to lubricate rolling-element bearings. It could be also characterized as a mist or an aerosol. It was originally developed in the 1930s in Europe to lubricate high-speed spindles, because grease and liquid oil could not effectively be used. The oil in grease would not provide adequate lubrication and liquid oil generated too much heat. Typically, oil mist will allow bearings to operate up to 20°F cooler and more, in many cases.

As oil-mist lubrication has become more widely used, some questions have arisen about whether it contributes to pollution, is a health hazard, or is combustible. Studies have been made, and have concluded that oil mist is none of these.

Oil mist is not a contributor to air pollution. California Rule #1173 titled Fugitive Emissions of Volatile Organic Compounds (VOC) specifically exempts lubricating fluid in section (i)(7).

Oil mist is not a health hazard. For example, the Canadian Occupational Safety Administration sets Occupational Exposure Limits at 5 mg/m³ for an 8-hour Occupational Exposure Limit (OEL) and 10 mg/m³ for a 15-minute OEL. In an industrial study conducted by a Canadian pulp and paper company, the highest level found was 1.19 mg/m³.

Oil mist is not a combustion or explosion risk. For oil mist to be combustible, the mixture of oil in air would have to be greater than 1::250. Oil mist is in a ratio of 1::200,000, which is far too lean of a mixture to support combustion.

The conclusion is that oil mist is safe to use. The user, in general, need not be overly concerned about its environmental, health or safety aspects. If the client is striving for zero emissions, closed-loop technology systems are also available.