

Health, Safety and Environmental Affairs - Nitrites

In September of 1984, The United States Environmental Protection Agency issued two documents on the subject of Nitrosamines. They were titled, "Notice to Formulators of Metalworking Fluids Potential Risk from Nitrosamines", and "Notice to Workers of the Potential Risk Nitrosamines in Metalworking Fluids".

In these documents, the EPA made a case for not mixing any types of amine, particularly DEA (diethanolamine) and TEA (triethanolamine), with nitrites of any kind because of the possible formation of N-nitrosodiethanolamine (NDELA), which is a suspected carcinogen. Depending on the grade of TEA purchased, there could be small to moderate amounts of DEA present in the material.

Within six months of this notice, Master Fluid Solutions and much of the metalworking fluids industry had stopped using nitrites in the manufacture of their cutting and grinding fluids. This does not mean that getting a "positive" test for nitrites is impossible or even improbable but it does mean that some investigation is in order. The 1984 EPA advisory applied only to products that contain both amines and nitrides. Some metalworking product formulators may still use nitrides in products that do not contain amines. Additionally these warnings have been interpreted to cover only metal cutting and forming fluids. Some manufacturers of parts washing compounds and rust preventatives continue to use both amines and nitrides, as the EPA Notices did not apply to them. When searching for the source(s) of a positive nitride reading or advisory, we suggest that you look for the following:

1. Does a freshly made working solution test positive? Are nitrides reported on the SDS?
2. Check both working solution and SDS for any water or oil based rust preventative (RPs) in use.
3. Check any parts washing compounds or maintenance cleaners that might contaminate the metalworking fluid.
4. Check for other possible sources of nitrides including fertilizer, ammonia refrigerants, explosives, etc.

Since mid October of 1984 there have been no nitrides in any fluid produced by the Master Fluid Solutions.

1. The initial testing of nitrides in aqueous (water) solutions is most often done with a simple colorimetric "dip stick" test. These test strips are available from most chemical supply companies.
2. For many years, nitrides were the preferred ferrous corrosion inhibitor in metalworking fluids, particularly synthetics (chemical fluids) and semisynthetics (semichemical fluids) because they were effective, had a long, problem-free history of use, and were very cost effective.
3. Since the fall of 1984, Master Fluid Solutions has not used nitrides in any of its products.
4. For years Master Fluid Solutions has bought, and continues to buy, only the highest quality TEA containing very low levels of DEA and has never used DEA in its formulations.

Notes