

## **HAZARDOUS SUBSTANCES**

### **METALWORKING FLUIDS**

#### **What are Metalworking Fluids?**

Metalworking fluids are substances used to cool and lubricate metal working processes. They lower heat and make things slippery. They remove waste metal chips. We know them as coolants, cutting oils, lubricants and machining fluids.

There are three main types of metalworking fluids in use in Canada. These are straight mineral oils, soluble oils and synthetic oils.

#### **Who is Exposed?**

CAW members who work in the following industries: auto, truck, and bus manufacturing; parts plants; aerospace plants, rail; mining; milling; smelting; foundries; metal manufacturing; the marine industry; and automotive servicing are exposed to metalworking fluids.

Skilled trades workers and production workers, especially in engine, transmission and component plants, grinders, stamping plant workers, screw machining operators, aerospace workers, and miners are exposed to large quantities of metalworking fluids.

#### **What Are Their Health Effects?**

##### Skin Problems

Skin problems such as irritation, rashes, and dermatitis are common among people exposed to metalworking fluids.

##### Cancer

We have known for a long time that exposure to metalworking fluids can cause skin cancer. Machinists who put oily rags in their pants pockets sometimes developed scrotal cancer.

We did not know until a few years ago that metalworking fluids caused other kinds of cancers. In the mid-1980's U.S. studies started to show that workers exposed to metalworking fluids were developing various kinds of cancers.

In the summer of 1992 a major study of General Motors workers in the United States showed excess levels of a number of different kinds of cancers. This GM / UAW study of 46,000 Michigan workers is disturbing.

The GM / UAW study of workers exposed to metalworking fluids and some other studies done in the

U.S. and Europe found excess levels of these kinds of cancers:

Skin cancer, cancer of the larynx, cancer of the rectum, stomach cancer, cancer of the esophagus, colon cancer, bladder cancer, sinonasal cancer, lung cancer, prostate cancer, and cancer of the pancreas.

### Lung Disease

U.S. Studies of workers exposed to metalworking fluids have found increased numbers of asthma, bronchitis, lipid pneumonia, hypersensitivity pneumonitis (extrinsic allergic alveolitis) and fibrosis.

By measuring workers' ability to breathe at the beginning of the work shift compared to the end of the work shift, researchers in the U.S. found that workers exposed to quite small amounts of metalworking fluids had a reduced ability to breathe.

### **CAW Political Actions**

We are pursuing two main courses of action in dealing with the metalworking fluids problem:

#### Lower Legal Limits

We made submissions to both the Ontario Ministry of Labour and the B.C. Workers' Compensation Board to reduce the legal limit for workplace exposure to machining fluids.

The present legal limit for exposure to machining fluids is 5 milligrams per cubic meter. This is an old legal limit from the time when it was thought that machining fluids were simply a "nuisance" in the workplace air.

Our union says the legal limit should be 0.2 milligrams per cubic meter. This is the level of exposure that the U.S. workers were found to have a reduced ability to breathe across their shift. This is the amount proposed by the American Conference of Governmental Industrial Hygienists. (ACGIH)

As the legal limits for workplace exposure are reviewed in other provinces, we will be making the same submission.

#### Workers' Compensation

We made two submissions to the Ontario Occupational Disease Panel asking them to recommend to the Workers' Compensation Board to make it easier to get workers' compensation for workers who have the various kinds of cancers and lung diseases caused by metalworking fluids.

We asked the ODP to recommend to the WCB that these diseases be listed in Schedule 3 so that there is a presumption that the metalworking fluids caused the disease unless the contrary is proved. Their first report agreed with us on the issue of cancer of the larynx. We hope other reports on other cancers and lung diseases will follow.

As other provinces review their lists of industrial diseases, we will make similar submissions.

### **What You Should Do at Your Workplace**

#### Your Right to Know

- ❖ Your fellow workers need to know about the hazards of metalworking fluids. **Give them a copy of this CAW Fact Sheet** so that everyone will know and understand the hazards.
- ❖ **Check the labels** of the metalworking fluids used to that you know the type of metalworking fluids.

- ❖ **Read the MSDSs** (Material Safety Data Sheets) so that you will know the ingredients of the metalworking fluids. You need to know about the additives as well as the fluid itself. These additives are used to prevent corrosion and bacteria buildup. When bacteria grow in metalworking fluids, the fluids go bad and smell awful. Fungi also grows in metalworking fluids. Both fungi and bacteria can cause lung disease and cancer.

Find out if the additives are nitrites or ethanolamine-type chemicals. These additives produce nitrosamines which cause cancer. Anytime you see the words “corrosion inhibitor” or know that metal has been treated or coated to prevent rust, be suspicious. Even though nitrites or ethanolamines may not be listed as an additive, they may be found in the corrosion inhibitor. Insist that a less harmful additive be substituted.

Find out if any substance that may be used to coat or treat the metal as a rust inhibitor contains nitrites. If the metalworking fluid you use contains ethanolamine and there is a coating of a nitrite containing corrosion inhibitor on the metal you are working on, they will combine to form nitrosamines.

### Your Union Health and Safety Committee

Your Union Health and Safety Committee should raise in the Joint Union-Management Health and Safety Committee meeting the following:

- Insist that **sources of exposure to metalworking fluids be enclosed**. Insist on splash controls.
- Insist on **excellent local exhaust ventilation**. This ventilation needs to be installed directly on the machine so you don’t breathe in the metalworking fluid mist. General ventilation on the ceiling isn’t good enough.
- **Reprocessed oils** may contain an accumulation of unknown contaminants. Insist that reprocessed oils are not used unless all components found can be identified as safe.
- Leave metalworking fluid systems on over the weekend to **prevent bacterial build up** in stagnant metalworking fluids. Most of these bacteria can’t live in air, so you want to keep metalworking fluids circulating. If you run a machine like a lathe, install an air pump on the coolant like the kind found in aquariums.
- If you are metalworking **tungsten carbide**, change the metalworking fluid once a month. This prevents the build up of cobalt in the metalworking fluid. Cobalt is found in tungsten carbide. It causes a lung disease called hard metal disease. If, however, your machine tool is made of tungsten carbide, there is probably extremely little cobalt found in the machining fluid **unless** there is a lot of machine tool wear, so you don’t have to change the fluid frequently.
- Each time the metalworking fluid is changed, **clean the machine extremely well**. Eliminating this old oil means that bacteria and fungi won’t contaminate the new fluid. Ensure tramp oil such as hydraulic oil does not leak into the metalworking fluids.
- **Substitute** the machining fluids that you presently use with **vegetable oil metalworking fluids**. The vegetable oil itself is harmless but the additives used to control bacteria are still worrisome, so don’t forget to use excellent local exhaust ventilation, enclosures and splash guards to reduce your exposure to as low as possible. Vegetable oils evaporate much less than conventional machining fluids so the amount of oil mist will be greatly reduced. As well, vegetable oils are better lubricants than conventional machining fluids so you will need to use less thus reducing your exposure. And finally,

vegetable oils are much more biodegradable than conventional fluids so they are much better for the environment.

- Ensure your **workplace air is monitored** by an occupational hygienist you trust to ensure your **exposure is below 0.2 milligrams per cubic metres.**

### Collective Bargaining

If you are not able to achieve all your goals through the Joint Union-Management Health and Safety Committee, raise proposals to reduce your members' exposure to metalworking fluids with your Union Plant Committee and National Staff Representative so that it can be raised in your next set of contract negotiations.

*We would like to thank the Windsor Occupational Health Clinic for Ontario Workers for their enthusiastic support and invaluable assistance in our efforts to inform CAW members about the hazards of machining fluids and reduce their exposures. We would also like to thank the Binol Filium Company of Sweden for developing vegetable oil machining fluids and the Swedish Metalworkers Union for taking on this important issue.*

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