



# CALIFORNIA METALS COALITION

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Sent via email: [P65PublicComments@oehha.ca.gov](mailto:P65PublicComments@oehha.ca.gov)

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## **RE: Metals Industry Comments on Proposed Prop 65 Listing “NOIL - Furfuryl Alcohol”**

California is home to approximately 4,000 metalworking facilities, employing over 110,000 Californians with middle-class manufacturing jobs and health benefits. 8 out of 10 employees in the metalworking sector are considered ethnic minorities or reside in disadvantaged communities.

California’s metalworking companies recycle discarded metal and manufacture new components used in: aerospace, biotech apparatuses, solar panels, electric cars, medical devices, infrastructure, national defense, agriculture, construction, transportation and millions of other applications.

### **Furfuryl Alcohol Application:**

For the California metalworking sector, a small percentage of metal casting (foundry) manufacturers utilize furfuryl alcohol as a dry sand binder. Furfuryl alcohol is used mainly in binders for the traditional no-bake system and in smaller quantities in hot-box, warm-box, and gas-hardened processes.

To be competitive in global manufacturing, California metal manufacturers have to make significant, long-term investments in equipment, research, employees, and materials. A modern foundry requires its binder system to be efficient, reliable, and cost effective.

### **Risk of Public or Worker Exposure to Furfuryl Alcohol:**

When mulled, the binder coats the grain of sand. This process is done in a closed system within the manufacturing facility. CMC is unaware of a situation where this process presents an exposure risk to the general public. And since the furfuryl alcohol is consumed in the binder process, it is not present in the final product—commonly a steel or iron casting.

For workers, the OSHA permissible exposure limit (PEL) for furfuryl alcohol is 50 ppm over an 8-hour work shift. The NIOSH REL is 50 ppm as a TWA for up to a 10-hour work shift, 40-hour workweek. Chemical protective clothing is utilized for working conditions, which include gloves, face shield, and other protection to prevent skin contact with furfuryl alcohol in the binding process.

Within the facility, California foundries commonly provide high rates of general exhaust ventilation to further reduce employee exposure to molding emissions and other sources of airborne contaminants. Within the facility, potential worker exposure to furfuryl alcohol during the molding process primarily occurs during the molding process when the workers are tamping the coated sand into the pattern, and striking off the mold. Although furfuryl alcohol is relatively volatile and some furfuryl alcohol emissions are generated, the total losses are actually quite small because the chemical hardener quickly polymerizes the furfuryl alcohol creating an infusible solid.

Emissions from the mixing, molding and curing process have been quantified, and totaled 0.34% by weight (*Castings Emissions Reduction Program, 2005*). Furfuryl alcohol exposure was also documented in studies in the 1960's and 1970's, and averaged roughly 5 mg/m<sup>3</sup> (*NIOSH Publication No. 79-133, 1979*). CMC believes worker exposure levels have decreased significantly since that time. Conservatively estimated, at a 5 mg/m<sup>3</sup> average exposure rate, an adult male at 70 Kg with a workday inhalation rate of 20 m<sup>3</sup>/day would be exposed to roughly 1.4 mg/Kg body weight. None of the studies cited in the EPA report found carcinogenic effects at similar exposure levels.

### **Petroleum Based Alternatives or Furfuryl Alcohol?:**

Furfuryl alcohol is not an oil-derived chemical. The basic raw materials for its manufacture are waste vegetable materials such as sugar cane bagasse, oat hulls, corn cobs and rice hulls. This reactive alcohol plays a vital role in the production of foundry sand binders. For over 40 years it has been extensively used to produce cores and molds for metal casting.

Foundry binders formulated with furfuryl alcohol are an ideal choice when compared to other chemical binder systems, primarily those formulated from synthetic organic chemicals. The binders that are displaced are ultimately derived from oil, and their principal component ingredients include phenol, formaldehyde, MDI, and petroleum naphtha.

California Air Resources Board (CARB), Cal-EPA, and the California Legislature have been leading advocates for eliminating, and/or substituting, petroleum products. Moreover, many in the environmental community argue that society should be sourcing an increasing number of chemicals from biologically derived materials, and particularly those which (like furfuryl alcohol) do not divert food crops or land used for production of food crops to production of chemicals or fuels. Development of such biologically-derived base chemicals is a field of great scientific interest and rapid development.

### **Alternatives are Potentially More Harmful to Our Environment:**

Emissions from furfuryl alcohol based binders have been compared to those from conventionally formulated binders. As compared to a conventional phenolic urethane no-bake binder, furfuryl alcohol-containing binders emitted 81% less organic carbon emissions, and 46% less hazardous air pollutants (*Castings Emissions Reduction Program, 2001*).

### **Source of OEHHA Data is for Soil Fumigant:**

OEHHA proposes to rely on a report by an authoritative body, in this case US EPA Office of Pesticide Programs, as the basis for listing furfuryl alcohol. The cited report evaluated furfuryl alcohol use as a soil fumigant, a use with very different exposure characteristics than use in foundry binders.

The US EPA report did not evaluate other use scenarios with different use and exposure characteristics, and specifically did not evaluate use in foundries. US EPA has a mechanism for evaluating potentially carcinogenic chemicals more broadly, the Integrated Risk Information System (IRIS). IRIS has not evaluated furfuryl alcohol carcinogenicity. Since the report did not include a broad evaluation of use scenarios and specifically did not evaluate a use scenario applicable to some California users of furfuryl alcohol, we believe the report fails to qualify as a report by an authoritative body for listing purposes.

### **OEHHA Limits Data to Only One Source:**

The data US EPA Office of Pesticide Programs used in its cancer assessment have been subject to more broad evaluation by companies making submittals to the EU as part of the REACH program, and those assessments have specifically considered foundry use exposure scenarios. The assessments are freely available on the European Chemicals Agency (ECHA) website's furfuryl alcohol dossier (*ECHA Furfuryl alcohol dossier, n.d.*). We believe the information and conclusions developed by those companies is important to understanding whether use of furfuryl alcohol in foundry binder applications warrants a Proposition 65 listing.

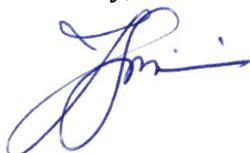
### **Taking a More Comprehensive Approach for Foundry Sector:**

The California Metals Coalition (CMC) proposes that instead of relying on the "authoritative body" approach to listing furfuryl alcohol, OEHHA should employ its Carcinogen Identification Committee (CIC) to evaluate the claims by the chemical producers in Europe, and other available data, to determine whether the data on use as a foundry binder supports identification of furfuryl alcohol as a carcinogen on the Proposition 65 list.

In the event that OEHHA CIC determines furfuryl alcohol warrants listing, then we believe OEHHA should publish safe harbor levels for furfuryl alcohol at the same time as its listing, allowing the supplier and user communities to determine whether the warnings can be omitted for specific uses such as foundry binder applications within the manufacturing facility.

We thank you for your dedication to our state, supporting middle-class jobs, and balancing the needs of communities. Please do not hesitate to contact CMC with any questions.

Sincerely,



James Simonelli  
Executive Director