

results primarily in central nervous system effects. Visual reaction time, hand steadiness, and eye-hand coordination were affected in chronically-exposed workers. Manganism, characterized by feelings of weakness and lethargy, tremors, a mask-like face, and psychological disturbances, may result from chronic exposure to higher levels. Impotence and loss of libido have been noted in male workers afflicted with manganism attributed to inhalation exposures. We have classified manganese in Group D, not classifiable as to carcinogenicity in humans.

Organic HAP such as chlorinated dibenzodioxins and furans (CDD/F) have been detected in the melt/reactor exhaust. One CDD/F compound, 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD), commonly called dioxin is listed singly as a HAP. Other CDD/F compounds, many of which cause adverse health effects in the same way as dioxin, are HAP under the definition of polycyclic organic matter. Exposure to CDD/F mixtures causes chloracne, a severe acne-like condition and has been shown to be extremely toxic in animal studies. Dioxin is known to be a developmental toxicant in animals causing skeletal deformities, kidney defects, and weakened immune responses in the offspring of animals exposed during pregnancy. Human studies have shown an association between dioxin and soft-tissue sarcomas, lymphomas, and stomach

carcinomas. We have classified dioxin as a probable human carcinogen (Group B2).

In addition to HAP, the proposed rule would also reduce particulate matter emissions which are controlled under national ambient air quality standards. Brief exposure to particulate matter has caused aggravation of existing respiratory and cardiovascular disease and increased risk of premature death.

We recognize that the degree of adverse effects to health experienced by exposed individuals can range from mild to severe. The extent and degree to which the health effects may be experienced depends on:

- Pollutant-specific characteristics (e.g., toxicity, half-life in the environment, bioaccumulation, and persistence);
- The ambient concentrations observed in the area (e.g., as influenced by emission rates, meteorological conditions, and terrain);
- The frequency and duration of exposures; and
- Characteristics of exposed individuals (e.g., genetics, age, preexisting health conditions, and lifestyle), which vary significantly with the population.

## II. Summary of Proposed Rule

### A. What Are the Affected Sources and Emission Points?

The affected source is each new or existing primary magnesium refinery. A new affected source is one constructed

or reconstructed after January 22, 2003. An existing affected source is one constructed or reconstructed on or before January 22, 2003. The proposed rule covers emissions from spray dryers, the melt reactor system, the launder off gas system, and magnesium chloride storage bins.

### B. What Are the Compliance Deadlines?

The owner or operator of an existing affected source would have to comply by [DATE 12 MONTHS AFTER THE FINAL RULE IS PUBLISHED IN THE **Federal Register**]. New or reconstructed sources that startup on or before [DATE THE FINAL RULE IS PUBLISHED IN THE **Federal Register**] must comply by [DATE THE FINAL RULE IS PUBLISHED IN THE **Federal Register**]. New or reconstructed sources that startup after [DATE THE FINAL RULE IS PUBLISHED IN THE **Federal Register**] must comply upon initial startup.

### C. What Are the Emission Limitations?

The proposed rule includes mass rate emission limits in pounds per hour (lbs/hr) for chlorine, hydrochloric acid, PM, and PM<sub>10</sub>. The emission limits are shown in Table 1 of this preamble.

TABLE 1.—PROPOSED MASS RATE EMISSION LIMITS

Emission point	Chlorine (lbs/hr)	HCL (lbs/hr)	PM (lbs/hr)	PM-10 (lbs/hr)
Spray Dryers .....	.....	200	100	.....
Magnesium Chloride Storage Bins .....	.....	47.5	.....	2.7
Melt/Reactor System .....	100	7.2	.....	13.1
Launder Off-Gas System .....	26.0	46.0	37.5	.....

The proposed rule also includes emission limits for dioxin/furan expressed in nanograms of toxicity equivalents per dry standard cubic meter (ng TEQ/dscm) corrected to 7 percent oxygen. Dioxins/furans include a group of 17 chemicals or congeners that share certain similar chemical structures and biological characteristics. The 2, 3, 7, 8-tetrachlorodibenzo-p-dioxin congener is the most well studied and the most toxic of these compounds. Scientists believe that dioxins cause effects in similar ways. Because of this and because exposure is typically to variable mixtures of dioxin-like compounds, we use toxicity equivalency factors (TEF) that compare

the potential toxicity of each of the individual dioxin-like compounds to the relative toxicity of 2, 3, 7, 8-tetrachlorodibenzo-p-dioxin. With such factors, the toxicity for a mixture can be expressed in terms of its Toxicity Equivalents (TEQ), which is the amount of TCDD it would take to equal the combined toxic effect of all the dioxin-like compounds found in the mixture. To calculate the TEQ, the concentration of each dioxin-like compound is multiplied by its respective TEF.

### D. What Are the Operation and Maintenance Requirements?

All plants subject to the proposed rule would be required to prepare and

implement a written startup, shutdown, and malfunction plan according to the requirements in § 63.6(e) of the NESHAP General Provisions. All plants must establish and meet operating limits for pressure drop and scrubber water flow rate. A written operation and maintenance plan is also required for control devices subject to an operating limit. The plan must describe procedures for monthly inspections and preventative maintenance requirements for control devices.

### E. What Are the Initial Compliance Requirements?

The proposed rule requires a performance test for each control device