



Environmental Health Information

Interplastic Corporation: April 2005 Update

Site Description and History

The Interplastic Corporation (Interplastic) facility is located at 2015 N.E. Broadway, Minneapolis and has operated at this location since 1966. This land was historically used as a dump and later for manufacturing. The area surrounding the site is zoned light industrial and manufacturing. At the time of this evaluation, the nearest residential areas were approximately 0.3 miles to the west and south. Since that time, zoning has been changed to allow residential uses nearer to the facility. As a result some conclusions about residential exposures may be understated.

Interplastic makes polyester resin, which is used in plastics. Historically, there have been numerous complaints from the surrounding community about odors attributed to the Interplastic facility. Health complaints included: breathing problems, allergic reactions, and eye, nose and throat irritation. In 1989 Interplastic installed a thermal oxidizer (which destroys chemical vapors by burning) in response to community complaints. Numerous breakdowns and shutdowns of the thermal oxidizer have occurred since it was installed. When the thermal oxidizer shuts down, all emissions are rerouted through a backup scrubber stack until the batch of resin is complete.

Interplastic applied for a total facility air permit in 1997. Complaints were reduced but not eliminated in 1998 when the hotbox (used to bake and solidify waste resins) was connected to the thermal oxidizer. From 1999-2001, MDH wrote three reports evaluating Interplastic emissions and the air permit, and recommended stack testing to determine the amount of chemicals released into the air. The Minnesota Pollution Control Agency (MPCA) Citizen's Board approved the permit requiring stack testing in 2000. Stack testing of emission occurred at the facility in October and November 2001.

Stack Testing of Air Emissions

Stack testing results indicate that about 95% of total emissions from Interplastic are: acetone, dicyclopentadiene (DCPD), 1,4-dioxane, ethyl benzene, ethylene glycol, maleic anhydride, methanol, methyl ethyl ketone (MEK), methyl methacrylate, nitrogen oxides, particulates (PM₁₀), phthalic anhydride, styrene, and xylene.

The emissions data were used to model amounts of chemicals that might occur in air around Interplastic. The results suggested that levels of some contaminants in the air may be of health concern in the immediate vicinity of the facility, particularly when the thermal oxidizer shuts down. People who work in facilities very close to the site are likely to have greater exposure to emissions. As the distance from the site increases, the exposure decreases. Odors from Interplastic may be experienced in residential areas.

What is Dicyclopentadiene (DCPD)?

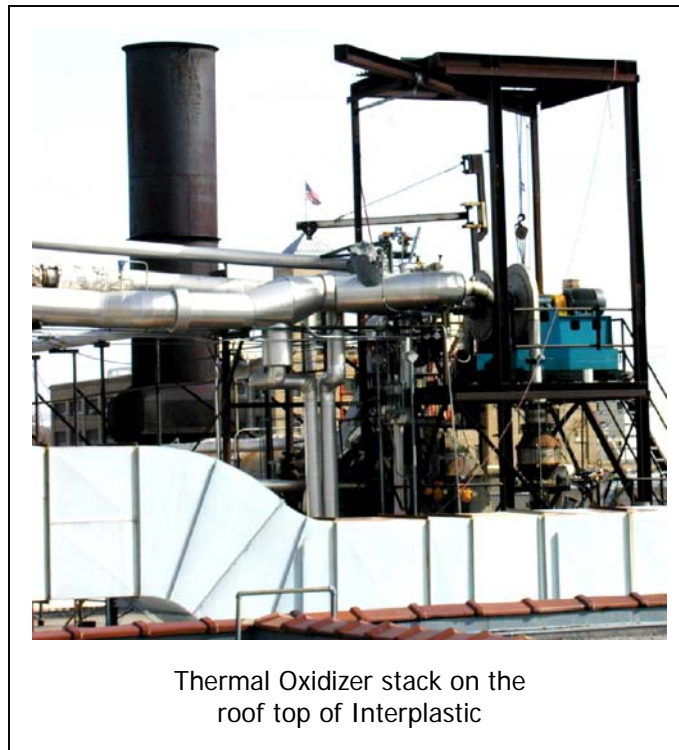
Of the chemicals found in the air emissions, DCPD is the chemical of most concern. DCPD is a man-made substance used in the manufacture of paints, varnishes, plastics, and pesticide products. It has a sweet but pungent odor, and most people can smell it at very low levels. Even at these low concentrations, individuals can find its odor very disagreeable. Some of the symptoms that may occur soon after exposure to DCPD include: headache, dizziness, nausea, and irritation of eyes, nose, and throat.

What are safe levels of exposure to DCPD?

Very little is known about the health effects from acute exposures (high concentrations for a short period of time) to DCPD. On the other hand, MDH and EPA have established safe health criteria for intermediate (months) and long-term (year) exposures to DCPD. For intermediate exposures, the MDH sub-chronic health risk value (HRV) for DCPD is 3 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). For long-term exposures, the EPA chronic reference concentration (RfC) is $0.21 \mu\text{g}/\text{m}^3$.

Why is exposure to DCPD a concern?

MDH is concerned about exposure to DCPD for two reasons. First, DCPD has a low odor threshold, which means that a small amount of DCPD causes a bad, noxious smell. This may affect quality of life. Second, stack testing results indicate that the health criteria (HRV and RfC) are exceeded at times immediately adjacent to the facility. Currently, no individuals are known to live within these areas, and therefore elevated exposures are likely limited to individuals working near the facility. While exposure to DCPD levels above health criteria may increase the chance of health effects, it does not mean health effects will occur. (For more information on DCPD, see the Environmental Health Information sheet on DCPD.)



Thermal Oxidizer stack on the roof top of Interplastic

What about the other chemicals in air emissions?

Besides DCPD, the health criterion for MEK may also be exceeded during acute, short-term exposures for people in the immediate vicinity. Other chemicals of concern from Interplastic emissions are: nitrogen oxides, maleic anhydride, phthalic anhydride, styrene, acetone, methyl methacrylate, and 1,4-dioxane. Most are irritants to the eyes and respiratory system. While they are emitted at low levels, they may add to irritating effects of other chemicals in air.

Are there any other effects from these chemicals?

Maleic anhydride, methyl methacrylate, and phthalic anhydride are sensitizers. Sensitizers are chemicals that may affect certain individuals. After a susceptible individual is initially exposed to a sensitizer in a large dose, a smaller dose at a later time may trigger a response in that individual. The same level of that chemical may not affect a non-sensitized individual. A bee sting is a common example of a sensitizing chemical – some individuals show effects while others do not.

What does MDH recommend?

To lower air exposures to nearby businesses and residents, MDH recommends that Interplastic increase the height of the thermal oxidizer stack and the scrubber stack. Raising the stacks will distribute the emissions over a larger area and lower the concentration of chemicals to which people near the facility may be exposed. As a result, the potential exposure to DCPD and the other chemicals in the air emissions near the facility will be decreased. However, there may still be some exposures of concern during breakdowns. Examination of steps to further reduce these thermal oxidizer breakdowns is recommended.

For more information contact:

MDH/Site Assessment and Consultation: (651) 201-4897 or 1 (800) 657-3908, press “4” and leave a message.

To request this document in another format, call (651) 201-4899. TDD: Minnesota Relay Service at 1 (800) 627-3529.

This information sheet was prepared in cooperation with the U.S. Agency for Toxic Substances and Disease Registry.



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