



November 13, 1985

Legal Section
Industrial Commission of Ohio
246 North High Street
Columbus, Ohio 43215

Re: O.D. 23771-22
Walter Scott Jr.
Owens-Corning Fiberglass Corporation
Newark, Ohio

Attention: Judy Spencer

Dear Ms. Spencer:

At your request an occupational disease investigation has been conducted at Owens-Corning Fiberglass Corporation located on Case Avenue, Newark, Ohio. The investigation is relative to O.D. #23771-22, Claimant Walter Scott Jr.

Mr. Scott states his injury is due to his exposure to chemicals on the A-4 Basic Forming machine.

Chemicals used on the A-4 line are ammonia, formaldehyde and phenol. The claimant also states he was exposed to fiberglass dust.

Previous industrial hygiene sampling has been conducted in the claimant's work area. Owens Corning Industrial Hygienist as well as the Occupational Safety and Health Administration's Industrial Hygienist has taken samples in the A-4 forming line as well as the A-4 pit. Their results are attached to this report.

In summary, ammonia levels of 4 to 10 parts per million have been found. Phenol samples ranged from 0.01 to 0.10 parts per million. Formaldehyde samples indicate 0.190 to 0.37 parts per million have been detected.

The Threshold Limit Value (TLV) for formaldehyde is 1.0 parts per million. While the TLV for phenol is 5.0 parts per million. The TLV for ammonia is 25 parts per million.

Threshold Limit Values refer to airborne concentrations of substances and represent conditions under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse effect. Because of wide variations in individual susceptibility, however, a small percentage of workers may experience discomfort from some substances at concentrations at or below the threshold limit; a smaller percentage may be affected more seriously by aggravation of a pre-existing condition or by development of an occupational illness. The TLV-TWA should be used as guides in the control of health hazards and should not be used as fine lines between safe and dangerous concentrations.

Ammonia gas is very irritating to the upper air passages. Acute inflammation, edema, ulceration and desquamation of mucous membranes are the products of acute exposures. Follow-up studies show that initially severe exposures show gradual improvement. There, however, have been cases where prolonged disability existed from gassing and with persistent chest symptoms following exposure to ammonia. The symptoms were attributed to bronchitis and bronchiectasis.¹

Overexposure to phenol can cause skin burns, euphoria, headache, tinnitus, vertigo, tachycardia, depression, collapse and coma. The lungs can readily absorb phenol and retain 60 to 89% of material to which they were exposed. The skin is the primary route of entry for phenol in the solid, liquid and vapor form with the liver detoxifying and kidneys excreting approximately 100% within 24 hours of acute exposure.²

Exposure to low atmospheric concentrations of formaldehyde causes irritation, especially of the eyes and respiratory tract. Due to the solubility of formaldehyde in water, the irritant effect is limited to the initial section of the respiratory tract. A concentration of two to three parts per million (ppm) causes slight formication of the eyes, nose, and pharynx; 4-5 ppm, discomfort rapidly increases; 10 ppm is tolerated with difficulty in breathing, burning of the eyes, nose and trachea, intense lacrimation and severe cough. Exposure to 50-100 ppm produces a feeling of restricted breathing, headache, palpitations and, in extreme cases, death due to edema or spasm of the glottis. Asthmatic symptoms may occur due to allergic sensitivity to formaldehyde, even at low concentrations. Because of hypersensitivity reactions, sensitized individuals should not be exposed to any formaldehyde whatsoever.

There have been reports of both inflammatory and allergic dermatitis due to direct contact with solutions, solids, or resins containing free formaldehyde. The inflammatory form follows even short-term contact with high concentrations of formaldehyde. The allergic form is usually caused by allergic sensitization, and may follow contact with only very low levels.

The toxicity of polymerized formaldehyde is similar to that of the monomer since heating produces depolymerization.

Owens-Corning Fiberglass Corp.
O.D. #23771-22

Page Three

NIOSH has recommended a standard of 1 ppm based on complaints of irritation, disturbing odor, and disturbed sleep; at levels of 1 to 2 ppm formaldehyde. In 1980, NIOSH published a Current Intelligence Bulletin entitled, 'Formaldehyde: Evidence of Carcinogenicity', based on animal studies. Formaldehyde is currently classified as a human carcinogen by the American Conference of Governmental Industrial Hygienists.

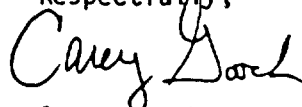
Fiberglass exposure was not reported by previous studies nor were they studied by this industrial hygienist. The coatings used over fiberglass fibers, primarily phenol, formaldehyde and ammonia appear to be of more concern than fibers themselves.

While the fibers are skin irritants, studies indicate that the fibers are not small enough to penetrate beyond the larger bronchi causing cough, sore throat and epistaxis.³

It must be pointed out that these values represent conditions on the date of this survey, and the degree of their applicability to any long-term situation can only be determined by a professional well versed in the practice of industrial hygiene and/or occupational medicine. Use of these data in an effort to establish or eliminate cause-and-effect relationships with regard to disease or illness must be done with extreme caution, and then only by an individual who fully understand the many inherent variables.

Mr. Scott was exposed to various levels of ammonia, phenol, and formaldehyde. The potential for brief overexposure (above TLV's) to these chemicals does exist primarily during periods of A-4 line malfunctions and scheduled maintenance.

Respectfully,



Carey Gooch
Industrial Hygienist

CG:gjb

Attachments

- 1) Letter dated September 30 from Owens Corning Fiberglass Corporation.

References

- 1) Occupational Lung Diseases, Morgan and Seaton, 1984, pg. 619.
- 2) Industrial Toxicology, Hamilton and Hardy. Wright, 1983, pg. 248.
- 3) Industrial Toxicology, Hamilton and Hardy. Wright, 1983, pg. 372.