

A Short Guide to Preventing Dermatitis while Working with Prepreg Advanced Composite Materials

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What are Advanced Composite Materials?

Advanced Composite Materials (ACM), are high performance materials such as prepregs, resin transfer molding compounds, and reinforced film adhesives. Some ingredients of advanced composite materials are sensitizers, meaning that workers may become allergic to these materials. **This document focuses on prepreg ACM use.**

Who Should be Concerned about Dermatitis?

Almost everyone working in facilities manufacturing prepreg composites or products made of these materials has the potential for exposure to skin irritants, allergens, or sensitizers. Maintenance personnel, laboratory workers, technicians, shipping workers, and production workers can be exposed to prepregs, solvents, lubricants, resins, fibers, detergents, hardeners, strippers, and degreasers. The materials used in composite manufacturing can also cause other health effects, including occupational asthma and eye irritation.

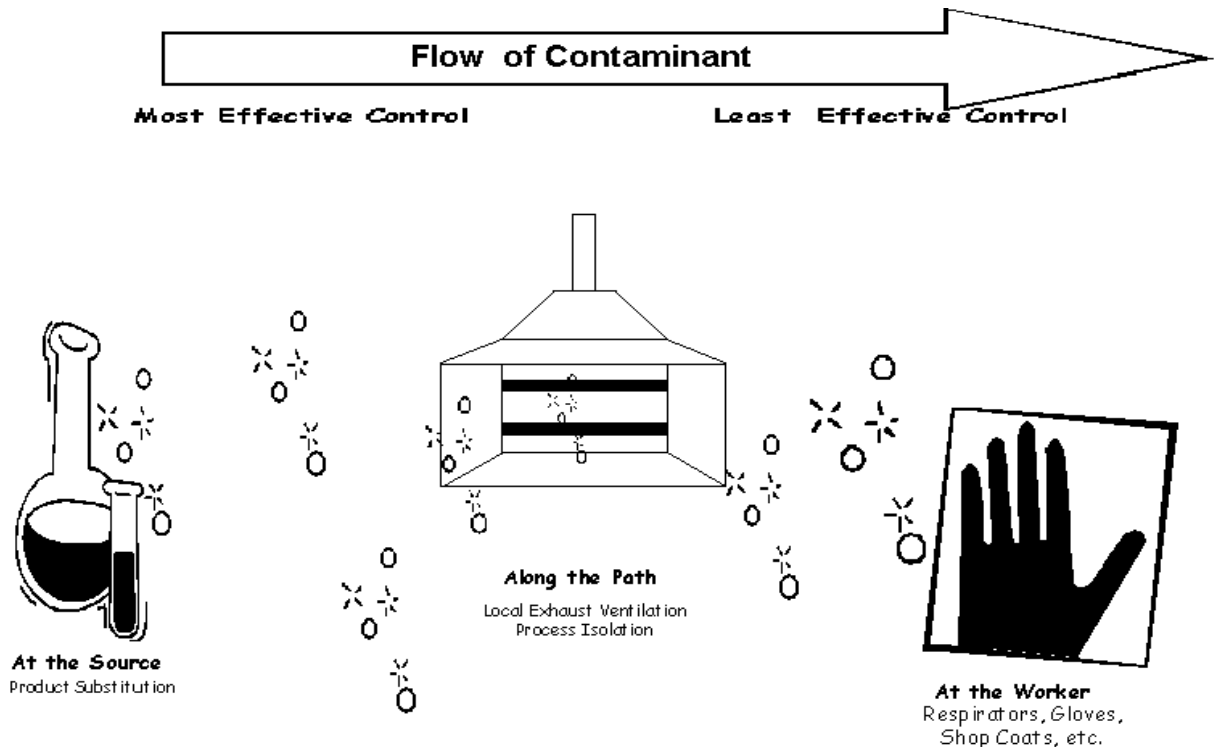
- People working with composites may be particularly vulnerable to skin problems because of continuous workplace exposure to resin systems, fibers (which act as mechanical irritants breaking the skin's surface), solvents, and other chemicals.
- The outlook for recovery can be poor, since many people who develop dermatitis will have long-term or chronic skin problems.
- Workers becoming sensitized to the material may have to be moved to another job or these workers may have to be retrained for a completely different occupation.

"Zero Contact"

The best approach to prevent dermatitis while working with prepreg ACM is to avoid any direct skin contact with the prepreg or with surfaces contaminated by it.

"Hierarchy of Controls"

Occupational health and safety professionals view exposures as a contaminant source, the path the contaminant travels, and the receiver (worker). Controlling exposures also follows these lines.



- The most effective way to prevent an exposure is to eliminate the source; a common way to do this is to replace a hazardous chemical with a less toxic one.
- The next most effective control is to catch the contaminant along its path. An example of this is local exhaust ventilation.
- The last types of exposure controls, and the least effective, are those implemented at the worker. These controls include gloves, respirators, shop coats, etc.

Currently, in the case of prepreg ACM's, substitutes are generally not available. The exposure path is by direct skin contact with the compounds. Therefore, the strict use of tools and personal protective equipment (PPE), such as gloves, are essential to preventing dermatitis. Supervisors and lead workers must ensure that all workers are using the appropriate PPE.

Supervisors or management will need to:

- Provide sweeps and rollers
- Provide the appropriate forms of PPE
- Provide training on the selection and use of PPE
- Set and enforce policies on the selection and use of PPE

Individual workers will need to:

- Develop the skills to lay up using tools such as sweeps or rollers.
- Reduce the amount of time handling prepregs.
- Wear the PPE provided.
- Retrain their sense of feel for laying up products while wearing gloves.

What to do if you're exposed to a compound that may cause dermatitis

- Be sure that you understand the types of skin problems the products you work with can cause and be aware of any special emergency exposure procedures or clean-up methods.
- If exposed to chemicals or fibers, respond immediately, do not wait until later or until it is “convenient”.
- If skin is exposed to fibers, do not rub or scratch the skin. Remove any visible fibers by using sticky tape. Wash skin with cold water and soap. Moisturize skin after cleansing.
- If the skin contacts a dermatitis-causing chemical, rinse the area with lots of water then use soap if there is no skin damage. Do not use solvents! You may be tempted to use solvents to remove sticky resins or other chemicals from your skin. It is important to recognize that this is a dangerous practice and could lead to further skin damage or other adverse health effects.
- Notify your supervisor if you develop any skin problems because of your work.
- If you notice any signs of dermatitis, see your doctor quickly. It is important to medically treat dermatitis as soon as possible, to stop the problem from getting worse. It may be helpful for your doctor to have a list of the specific materials you handled, copies of Material Safety Data Sheets (MSDS) for these materials may also help your doctor prescribe the proper treatment.

Dermatitis is preventable!

What is SHARP?

SHARP stands for Safety & Health Assessment & Research for Prevention. SHARP is a multidisciplinary research program within the Washington State Department of Labor and Industries. SHARP's mission is to conduct research, monitoring, and demonstration projects that promote healthy work environments and the prevention of workplace injuries and illnesses. SHARP was created by the Washington State Legislature in 1990.

SHARP addresses a diverse range of occupational health concerns in response to requests from employers, labor, health care professionals, and agency staff. SHARP's research specialists offer expertise in computer systems, epidemiology, ergonomics, economics, industrial hygiene, occupational medicine, occupational safety, and toxicology.

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Check out SHARP on the World Wide Web!

<http://www.wa.gov/lni/sharp>

SHARP's web site provides more information on the SHARP program, describes SHARP's research interests, lists our publications (some are available on-line), introduces the SHARP team, and provides links to other sites of occupational and environmental interest.