

Glove alert!



Fatal failure of a disposable glove

The possibility of a chemical passing through a disposable glove is tragically illustrated by the June 8, 1997 death of Dartmouth College chemistry professor, Karen E. Wetterhahn. In a letter to *Chemical & Engineering News* shortly before Dr. Wetterhahn's death, Michael B. Blayney, director of environmental health and safety at Dartmouth, and two other Dartmouth authors, said **her severe mercury toxicity was the result of "a single exposure to dimethylmercury."** Review of research notes, interviews, hair analysis, and statements made by the patient established the circumstances and events described here. Testing of the type of gloves worn by the patient supports the hypothesis that dimethylmercury rapidly penetrated them, resulting in transdermal exposure. **"It appears that there was only one acute exposure to dimethylmercury. The patient recounted spilling one or several drops (estimated to total 0.1 to 0.5 mL) on disposable latex gloves during a transfer procedure in a fume hood while preparing a mercury nuclear magnetic resonance standard"**

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Attention Latex/Synthetic Glove Wearers!

If you experience any of the symptoms detailed below, you are strongly advised to follow the actions detailed in the relevant section.

Irritant Dermatitis

Symptoms: Burning, itching, redness, inflammation, swelling, excessive dryness, cracks or horizontal fissures, sores, blisters, papules (small, hard bumps), thickened skin with crusting and peeling.

Extent: Stops at glove boundary.

Causes: Chemicals, powder, endotoxin, friction, occlusion (lack of air to the skin), long-term water or sweat contact.

Susceptibility: Anyone can experience

Action:

- Inform your supervisor and the SLS H&S Co-ordinator.
- An appointment will be arranged with Occupational Health. In the interim:
 - Wear a larger glove to increase air circulation until hands heal.
 - Change gloves more frequently to allow air to get to the hands if gloves are worn for long periods.
 - Wear powder-free gloves.
 - Consider anti-inflammatory creams; however, avoid petroleum-based creams when wearing latex gloves.
 - Choose gloves low in residual chemicals.
 - Consider using glove liners made of cotton, nylon or other materials.



Type IV, Chemical Allergy

Symptoms: Redness, swelling, small blisters, clustered vesicles, itching, pain, dry, thickened skin, crusting, scabbing, sores, peeling, scaling, open lesions, papules.

Extent: May extend beyond glove boundary.

Causes: Chemical additives/accelerators (thiurams, thiazoles, carbamates, thioureas), antioxidants, antiozonates, plasticizers, donning agents, biocides, etc.

Susceptibility: Must have the genetic predisposition to develop an allergy to those specific chemicals.

Action:

- Inform your supervisor and the SLS H&S Co-ordinator.
- An appointment will be arranged with Occupational Health. In the interim:
 - Wear powder-free gloves.
 - Switch to gloves documented to be low in contact sensitizers and low in residual chemicals.
 - Consider allergen contact avenues other than the gloves.
 - Consider glove liners made of cotton, nylon or other materials.



Type I, Latex Protein Allergy

Symptoms: Hives, swelling, watery eyes, runny nose, difficulty breathing, asthma, abdominal cramps, dizziness, low blood pressure, rapid heart rate, anaphylactic shock.

Extent: May extend beyond glove boundary; may become systemic.

Causes: Protein allergens from the raw natural rubber latex of the rubber tree *Hevea brasiliensis*.

Susceptibility: Must have genetic predisposition to develop an allergy to latex protein allergens.

Action:

- Get medical attention immediately.
- Upon return to work:
 - Inform your supervisor and the SLS H&S Co-ordinator who will notify Occupational Health.
 - Stop wearing latex gloves. Wear only synthetic alternatives.
 - Your co-workers will also be instructed to use only synthetic gloves.
 - Identify other latex containing products that may pose a risk to your health and take steps to avoid contact with them.
 - Wear medical alert identification.
 - Carry a source of epinephrine injection if prescribed.
 - Be observant of any symptoms that may develop after contact with cross-reactive allergens.

