



**Complete Health, Environmental, and Safety Services, Inc.  
Janet L. Keyes, MS, CIH and Carol A. Keyes, MA, CRC**

**Waterborne Paints: They're Safer, But...**

You're pondering the switch to waterborne. Some say you'll have to switch (that's true if you're in Canada or California, but not in Minnesota). Everyone says they're better for the environment. You've been told they're safer. Are they the perfect solution? We know they reduce air pollution. And we think waterborne paints are much safer for workers. But don't forget: they aren't just water.

Waterborne paints are combustible. They don't catch fire as easily as solvent-borne paints, but they still can burn, about as readily as kerosene. Because they're combustible, you have to spray them in an acceptable spray booth. A good spray booth helps you get a good paint job and protects the painter, but the major reason both OSHA and the fire marshal require one is for protection against fire. That protection is needed whether the paint is thinned with water or thinned with solvent.

Waterborne paints are not as safe as water. They are less toxic than the paints they're replacing. But they still contain chemicals that can cause harm from breathing them or from skin contact. They can be absorbed through the skin, and can also dry out and irritate skin. The chemicals can cause long term damage to the nervous system, liver, kidneys, and blood. If the products are used carefully, of course, these problems can be avoided.

Because the chemicals in waterborne paints can be absorbed through the skin, painters still need to wear gloves for mixing, spraying, and cleanup. Not surgical gloves of any type, latex or of nitrile. These don't hold up against the solvents used to clean up after solvent-based paints, and they don't hold up against the chemicals in waterborne paints.

Isocyanates are still used with waterborne paints. So respirators still need to be used. Isocyanates, the active ingredient in the paint hardeners, are very good at causing allergic lung reactions. Careful painters who conscientiously use respirators and gloves probably won't become allergic. But as little as one unprotected exposure could sensitize a painter. Once sensitized, a painter who breathes a tiny whiff of hardener could develop a severe asthma reaction, bad enough that you'll want the paramedics on speed dial. To ensure that doesn't happen, your painters need to wear respirators whenever they spray paint with hardener in it. If you're using cartridge respirators, the cartridges might last a bit longer. That's the only respirator benefit you'll see, though.



CHESS, Inc.  
7060 Valley Creek Plaza #115-108  
Woodbury, MN 55125  
Ph: 651-481-9787  
Fax: 651-415-2886

Complete Health Environmental and Safety Services

---

If you're spraying basecoat without hardener in it, is a respirator still needed? The answer is still yes. Some of the waterborne paints (such as Spies Hecker's Permahyd) have isocyanates in the basecoats. All of them are likely to cause irritation if breathed in. You don't have to change the type of respirator when you switch, but you do need to keep using the respirator.

You'll still be using organic solvents (VOCs) when you switch to waterborne paints. It's the basecoat that's changed, not the clear and not the primer. You'll use much less thinner and gun cleaner, but you'll still be using those. One huge difference with waterbornes: your painters will have less exposure to the solvents used for cleanup. And those solvents usually are more volatile and more potentially harmful than the ones found in the basecoats. They usually include toluene, which evaporates easily and penetrates skin easily. If you can do a lot of cleanup with water, instead of toluene, you're a step ahead.

There are many things your painters will need to learn when they switch to waterborne paints. But they won't have to learn new protective measures. If they're adequately protected now – spraying only in the paint booth, wearing gloves when skin contact could occur, using suitable respirators for all spraying – they'll be even better protected when they use the water-based paints. The new paint systems aren't nearly as safe as the finger paints your toddler plays with, but they're a safety improvement.

If you have questions about waterborne paint safety, workplace safety rules, or other safety issues, contact CHESS at 651-481-9787; toll free at 877-481-9787, or [carkey@chess-safety.com](mailto:carkey@chess-safety.com).

### **Can you find the hazard?**

Dirty respirator left out in mixing room, where it can become contaminated.