

Safety Goggles: What Is "CLEAN?"

SAFE SCI: Be Protected!

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What Does "Clean" Mean?

When working in the trenches of school science laboratories, one can't help but notice the myriad of procedures or lack thereof used when it comes to the "cleaning" of personal protective equipment for eyes: e.g. safety glasses and goggles. The word "clean" means different things to different people. It can run the spectrum. To some it means safety eye-wear is to be washed once a semester or year if that often. To another, it means following strict legal safety standards and/or professional best practices on every instance of use.



However, the first question that comes to mind is – why clean them? The answer is simple – they get dirty. Sources can be biological (bacteria, fungi, etc.), chemical (hazardous chemical splash residues, etc.) and/or physical (dust, dirt, etc.). Some of these partially block vision, are transfer vehicles for disease and infections or can cause inflammation/burns to the eye and skin tissue.

From a biological perspective, legal standards can be found to require that safety eye-wear be disinfected and/or sanitized. Some believe the two processes are the same and yet others make the following distinction:

Disinfectant: A disinfectant is a product which completely destroys all specific test organisms (including fungi and bacteria) in 10 minutes under conditions of the AOAC Use Dilution Test. Disinfectants do not necessarily destroy spores on surfaces. This is usually applicable to places like hospitals.

Sanitizer: A sanitizer is a product which destroys 99.999% of specified test bacteria in 30 seconds under conditions of the Official Detergent Sanitizer Test or Weber & Black Test including their spores on surfaces. These are usually applied to food service facilities.

Two examples of legal standards are as follows: For the cleaning of eye-protective devices via "sanitizing," the California State Department of Education's *Science Safety Handbook for California Public Schools 2012*

Edition (<http://www.cde.ca.gov/pd/ca/sc/documents/scisafebk2012.pdf>) (Pg 44 eye safety) requires the following:

- Maintain reasonable standards of cleanliness. Sanitizers eliminate or inactivate bacteria s because eye-protective devices will usually be shared by several persons. Use of germicidal dips or cabinets
- Is highly recommended, along with frequent, thorough washing. Although these procedures do not sterilize, they do sanitize, which is safer than not cleaning at all.
- Students with unhealthy, possibly contagious skin or eye conditions should be encouraged to purchase personal safety goggles; or specific goggles should be reserved for students' exclusive use.

The second example which involves "disinfection" is from the United States Occupational Safety and Health Administration.

In OSHA's Maintenance and Care of PPE <http://www.osha.gov/SLTC/etools/eyeandface/employer/requirements.html#Maintenance and Care of PPE> the following procedure is required: Several methods for disinfecting eye-protective or OSHA equipment are acceptable.

The most effective method is to disassemble the goggles or spectacles and thoroughly clean all parts with soap and warm water.

- Carefully rinse all traces of soap and replace defective parts with new ones.
- Swab thoroughly or completely and immerse

all parts for 10 minutes in a solution of germicidal deodorant fungicide.

- Remove parts from solution and suspend in a clean place for air drying at room temperature or with heated air.
- Do not rinse after removing parts from the solution because this will remove the germicidal residue that retains its effectiveness after drying.

Eyeing "Cleaning" Procedures!

So what should be done to "clean" safety glasses and goggles? The following are a few suggestions that should be considered:

- **Goggle Sanitizers:** These are the high-end sanitizers. They use high-intensity ultraviolet light to sanitize goggles and glasses. This allows different users to share the eye protectors. A note of caution is urged. Evidence does suggest that unless stacked and exposed correctly to the ultraviolet light in the sanitizers, this device



can be ineffective in sanitizing eye-wear. Always follow the manufacturer's directions. Also remember, sanitizers basically focus on cleaning the biologicals! Physicals and chemicals will still need to be addressed.

- **Alcohol Wipes:** The use of alcohol wipes allows for disinfection of eye-wear. The advantage

is they are portable and don't require electrical power like the sanitizers.

In large volume use, they can be expensive and packets



do dry out over time. They do for the most part address all three sources – biologicals, chemicals and physicals.

- **Antibacterial dish detergent:** The use of a dish detergent solution is relatively inexpen-



sive but can be messy with water splashing on the floor causing slip/fall hazards. The good news is it addresses biological, chemical and physical products.

- **There are other liquid sanitizers** that can be used. Check the safety data sheets for disinfectant or sanitizer properties and appropriate use. No matter which process is used, cleaning should be done after each use.



In The End!

REMEMBER, SCIENCE TEACHERS HAVE “DUTY OF CARE!”

Part of that legal responsibility is duty to inspect safety equipment. If they are not clean and are contributory to a safety or health incident, the teacher may have shared legal liability. Visually check all eye-wear and make sure they are “clean!” Also remind students to either sanitize or disinfect eye-wear for each and every class in concert with the school’s hygiene policy!!

