

Chemical Resistance

Our testing is conducted in a controlled test environment. It may not correlate with facility use conditions, as it is difficult to duplicate the effect of multiple cleanings per day over a period of several years. Cleaning methods & protocols, direct exposure to heat and sunlight along with how the furniture is being used, create variables that could affect performance over time. The cleaning agent supplier should be consulted to determine appropriateness for specific applications. All cleaning label instructions and precautions should be followed.

Therefore, this chart is only a reference guide for the selection of appropriate cleaning products. It is not a recommendation, or approval, for any specific cleaner or cleaning method. We offer these results along with our assurance that the formulation of EnviroLeather™ exhibits superior chemical resistance compared to most faux leathers and has proven to hold up well in 99% of applications.

Passes Testing:

**Indicates Best Choices*

3M #2 Disinfectants	*HB Quat	*Oxivir Wipes
3M #25 Disinfectants	Hillyard Vindicator+	PDI AF3 Wipes
3M #3 Disinfectants	*Isopropyl Alcohol (70%)	PDI Plus Wipes
3M #8 Disinfectants	JAWS	PDI Sani-Cloth
*Accel Tb Wipes	Johnson Diversey ALPHA HP	Bleach Germicidal Wipes
*Bleach (20%)	Johnson Diversey Butchers #11	PDI Super Sani Wipes
Cavi Wipes	Johnson Diversey Forward SC	Soap and Water
Chlorine Dioxide	Johnson Diversey Glance HC	Spartan HDQ Spitfire
Clorox Bleach Germicidal Wipes	Johnson Diversey TRIAD III	Non-Butyl Tide
Clorox Disinfectant Wipes	Johnson Diversity Expose II 256	Virex II 256
Dimension	Lysol IC	Virex Tb
Dispatch Wipes	Maxi Blend	Virox 5
Diversey Sporidical	Odorless Mineral Spirits	*Virox Wipes
Enviro Patrol	Oxivir Five 16	Wex-cide
Green Solutions Disinfectant	Oxivir Plus	Wex-cide 128
*Formula 409		

Passes testing but use with caution:

Oxycide Daily Disinfectant Cleaner

***Reference attached Oxycide report*

enviroleather™

by LDI 

September 27, 2016

To: All EnviroLeather™ Customers and Staff

Re: Concerns with Oxycide Daily Disinfectant

We have serious concerns about the impact on upholstery materials related to the cleaning and disinfecting protocol of Oxycide, a relatively new chemical brought to market in 2013. Also, we understand the importance of infection control, but the use of this product seems to go against all the health and environmental goals of the healthcare systems we serve.

Oxycide is specifically designed to disinfect, deodorize and clean inanimate, hard non-porous surfaces such as walls, floors, furniture, sink tops, faucets, tubs, and operating tables. Note that the label suggests leaving Oxycide on for five minutes and air drying with no rinsing (so residual disinfectant is left on the surface). This might be OK for a hard surface, but does not follow our recommended cleaning instructions for faux leather.

Also, the Oxycide MSDS (page 7) says to avoid direct sources of heat and exposure to sunlight. The harsh cleaner combined with heat and UV accelerates oxidation, weakening upholstery material. Depending on the size and design of a seat cushion a great deal of flex can occur in upholstery during use. Weakened material subjected to repeated flex can lead to material failure.

Our recommendations, especially in patient rooms with sleep sofas in front of windows:

- These suggestions would apply to ALL coated fabric upholstery options – this is not exclusive to EnviroLeather™.
- Ideally, for upholstery consider alternative cleaners and disinfectants that are less corrosive.
- If your Infection Prevention team allows for it, rinse Oxycide off your upholstery material with water after the necessary dwell time has been reached. Then dry your upholstery. We cannot guarantee this will eliminate the issue, but we feel confident it would help extend the life of the product vs not rinsing it off.

We have made production/formulation improvements to our products in 2016 to improve long term performance related to abrasion at seams. We also hope these breakthroughs will improve resistance to Oxycide, but cannot know with certainty until field case studies are performed.

Upholstery suppliers are not in a position to predict performance outcomes involving a combination of variables such as heavy use, furniture design or facility care and maintenance protocols. Thus, material failure attributed to high use, furniture design, care or maintenance is not a factory defect – and it is not typically covered by warranty.

Please see the summary below on the hazard concerns:

Hospitals should strongly consider discontinuing the use of Oxycide, due to:

1. Employee health hazards
2. Environmental health hazards
3. Long term damage to upholstery fabric. It is a strong, corrosive oxidizer and is designed for hard surfaces. The cleaning protocol calls for residual disinfectant to air dry and remain on material without rinsing. This is contrary to recommended cleaning instructions for upholstery fabrics.
4. Use near a window can accelerate oxidation degradation issues. The MSDS below specifically states to avoid exposure to heat and /or direct sunlight.

Here is some important reference information on the hazards of Oxycide:

1. OxyCide was only recently introduced to market (summer of 2013). There is not enough history to determine long term effects.
2. Article describing health hazards to employees
<http://www.pghcitypaper.com/pittsburgh/oxycide-is-supposed-to-make-hospitals-cleaner-and-safer-for-patients-but-what-about-the-staff-that-has-to-use-it/Content?oid=1807185>

Here are some excerpts from this article:

- “When OxyCide hit the market in 2013, it was advertised as a non-bleach alternative cleaner for daily use in health-care settings.”
- When Robert Ross has to use the cleaning solution OxyCide as part of his job as a housekeeping employee at UPMC Magee-Women's Hospital, it's not a pleasant experience. "It burns my eyes, it makes them water. It burns my throat," says Ross. "The best way to describe it is it's like working with onions. You have no relief, unless you take a break and go someplace that's well ventilated so you can get some air."
- OxyCide, a relatively new hospital-cleaning product, was selected as the primary cleaning solution in nearly 20 UPMC facilities last spring. Since that time, some employees say they and their co-workers have experienced a number of adverse side effects when using the product. "A lot of my co-workers have complained about respiratory issues, like they were having trouble breathing. A lot of them would complain about their eyes being irritated," says Justin Sheldon, a housekeeper at UPMC Presbyterian Hospital. "I'm concerned about the health effects that this product poses to not only my coworkers, but to the patients."
- In an employee-conducted survey of 244 UPMC workers, 81 percent of respondents indicated they had suffered negative effects from OxyCide. The most common effects were a runny or burning nose, which was experienced by 56 percent of respondents; and headaches, which were experienced by 50 percent. In addition, 6 percent reported other effects, including nose bleeds and vomiting.

- "[OxyCide is] so dangerous. It's putting a lot of us at risk, and not just the health-care workers, but doctors and patients as well. It's about everyone in the hospital," says Ross. "Everywhere this product is being used it should be gotten rid of."

3. Article about NIOSH report on health issues associated with Oxycide
<https://www.ahcmedia.com/articles/138245-protect-patients-harm-workers-cleaning-agent-raises-concerns>

Here are some excerpts from this article:

- Preliminary results of an ongoing public health investigation indicate that a powerful sporicidal cleaning agent used in some 500 hospitals may be linked to wheezing, watery eyes, and asthma-like symptoms in healthcare workers, the National Institute for Occupational Safety and Health (NIOSH) reports.
- The situation is emblematic of an ongoing dilemma in healthcare. Strong products needed to protect patients from an epidemic of *Clostridium difficile* — a spore-former difficult to remove from the hospital environment — may trigger respiratory symptoms in housekeeping and other healthcare workers exposed to the chemicals during cleaning.
- "There really has to be a balance between patient safety and worker safety," says Megan Casey, RN, MPH, a NIOSH nurse epidemiologist who is investigating the case. "We need to make sure that worker safety is not compromised as we continue this battle against healthcare-associated infections."
- The NIOSH investigation began after healthcare workers at Magee-Womens Hospital in Pittsburgh contacted the agency and expressed concerns about their reactions to a new cleaning product in use at the facility. Employees complained of symptoms that included burning eyes, nose, and throat; cough, headache, dizziness, nausea, asthma exacerbation, and skin burns and rashes.
- **NIOSH conducted a hazard evaluation report at the hospital, concluding in an April 12, 2016, interim report to the facility that the "findings support the conclusion that exposure to OxyCide is associated with adverse health effects and indicate the need to minimize employee exposures."**¹

4. Oxycide Label: toxicity

ENVIRONMENTAL HAZARDS: This pesticide is toxic to birds, fish, and aquatic invertebrates. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority.

5. Oxycide Label: hazardous information

CORROSIVE: Corrosive. Causes skin burns. Causes irreversible eye damage. May be fatal if inhaled. May be fatal if swallowed. Harmful if absorbed through the skin. Do not get in eyes, on skin, or on clothing.

Strong oxidizing agent. Corrosive. Do not use in concentrated form. Mix only with water according to label instructions. Never bring concentrate in contact with other sanitizers, cleaners or organic substances.

6. Label information: Recommended Cleaning Protocol

The concern is that this is a very harsh, corrosive oxidizer designed for hard surfaces and its recommended cleaning protocol may have a detrimental effect on upholstery. Note that the label suggests leaving Oxycide on for five minutes and air drying with no rinsing (so residual disinfectant is left on the surface). This might be OK for a hard surface, but is not a recommended cleaning protocol for faux leather. See label info below:

- OxyCide Daily Disinfectant Cleaner use solution cleans, disinfects and deodorizes hard, nonporous hospital/medical surfaces in one step with no rinsing required.
- This product is specifically designed to disinfect, deodorize and clean inanimate hard non-porous surfaces such as walls, floors, sink tops, furniture, patient beds, and operating tables.
- May be used to clean and disinfect floor areas, sinks, faucets, bathrooms and tubs
- This product use solution is a broad spectrum disinfectant cleaner and deodorizer designed for general cleaning and disinfecting of hard, nonporous surfaces
- Apply solution with mop, cloth, sponge, brush, scrubber, or coarse spray device or by soaking so as to wet all surfaces thoroughly. Allow to remain wet for required contact of 3 or 5 minutes and then either allow to air dry, or if desired remove solution
- Contact time: Leave surface wet for 3 minutes for HIV-1 and 5 minutes for HBV and HCV with 3oz. per gallon use-solution

7. MSDS

- <https://c.aarc.org/headlines/14/10/ebola/oxycide.pdf>
- Conditions to avoid: Direct sources of heat and exposure to sunlight

Respectfully Submitted,

Josh Dame
President