2 Evaluating Product Risks

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In This Section - How do you find out what products have the greatest risks to your janitors, and to the people who occupy the buildings that you service?

To start with we will talk about the kinds of work where janitors use strong chemicals.

Next we will list the ingredients in these products that make them so dangerous. We will use material safety data sheets (MSDSs) to find out how these ingredients can harm the unprotected worker, and to tell us what protection the user should wear.

To finish off the hour we will take a look at sample products to see what their labels and MSDSs tell us about the risks that they have.

Looking Ahead - In the next section we will talk about safer janitorial products that you can use, and how to go about finding and testing them.

2.1 What Are Your Highest Risk Products?

We have found that the highest risk janitorial products are generally ones that:

- are corrosive to the eyes and skin;
- are flammable;
- give off toxic fumes; or
- are poisonous.

Product	Hazards Often Seen In This Kind Of Product	Do You Use This Product?
Acid Toilet Bowl Cleaner With Hydrochloric Acid	Corrosive to eyes and skin; Can cause blindness	
Metal Cleaner With Perchloroethylene	Poisonous, Causes Cancer, or Flammable	
Carpet Spotter With Perchloroethylene	Poisonous, Causes Cancer, or Flammable	
General Purpose Cleaner With Butoxyethanol, Sodium Hydroxide, & Ethanolamine	Corrosive to eyes and skin, Poisonous, or Flammable	
Floor Finish Stripper With Butoxyethanol, Sodium Hydroxide, & Ethanolamine	Corrosive to eyes and skin & Poisonous	
Baseboard Stripper With Butoxyethanol, Sodium Hydroxide, & Ethanolamine	Corrosive to eyes and skin & Poisonous	
Graffiti Remover With Methylene Chloride or Perchloroethylene	Poisonous, Causes Cancer, or Flammable	
Glass Cleaner With Butoxyethanol	Flammable, or Poisonous	
Disinfectant With Bleach, Phenol, Quats., or Hydrogen Peroxide	Corrosive to eyes and skin & Poisonous	

2.2 What Are The Highest Risk Ingredients?

The following are examples of ingredients in janitorial products that pose the greatest health hazards to the user, building occupants, and the environment in general.

Type	Examples	Problems
Acids	Hydrochloric Acid, Phosphoric Acid	Corrosive - Causes blindness Damages skin Sewer discharge pH too low
Caustic	Sodium Hydroxide; Sodium Metasilicate; Potassium Hydroxide	Corrosive - Causes blindness Damages skin Sewer pH too high
Solvents	Perchloroethylene Butoxyethanol; Ethanolamine Toluene HCFC-141	Causes cancer Poison - Absorbs through skin & poisons liver, kidneys, and a pregnant woman's fetus Environmental - Destroys the ozone layer; causes global warming
Surfactants	Alkyl Phenol Ethoxylates	Environmental - Persists in the environment; bioaccumulates; affects animal hormone systems
Disinfectants	Bleach (Sodium Hypochlorite) Paradichlorobenzene (Urinal Blocks) Quaternary Ammonium Chloride	Corrosive - Can burn eyes & skin Reacts - Bleach mixed with acid or ammonia causes poison gas Causes cancer Corrosive - Can burn eyes & skin

Where can you get more information about these ingredients? The best sources are Material Safety Data Sheets (MSDSs) for your janitorial products, or MSDSs for the toxic ingredients themselves. In addition, our project has published a safety summary of 100 common ingredients found in many janitorial products. Visit our web site for details.

<http://www.westp2net.org/Janitorial/jp4.htm>

Do Not Use The Following Ingredients

Janitorial products with these ingredients pose unacceptable risks to the janitor, to building occupants, or to the environment. Gloves and goggles, may not be enough to fully protect the user from harm. In some instances the ingredients are illegal for janitorial products.

A “Skin Poison” can absorb through your skin and poison your liver, kidneys, and other internal organs. An “Inhale Poison” harms you when you breath the fumes. “Corrosive” means that the chemical can permanently destroy your eyes and skin.

CAS Number	Ingredient Name	Problems
00100-51-6	Benzyl Alcohol	Cancer / Corrosive / Skin Poison
00075-45-6	CFC-22; Chloro difluoro methane	Illegal
68603-42-9	Coconut Oil Diethanolamine	Cancer
00111-42-2	Diethanolamine	Cancer
00075-68-3	HCFC-141	Illegal
00120-40-1	Lauric Acid Diethanolamine	Cancer
00071-55-6	Methyl Chloroform; 1,1,1-TCE	Skin Poison
00078-93-3	Methyl Ethyl Ketone	Skin Poison
00091-20-3	Naphthalene	Cancer / Corrosive / Skin Poison
18662-53-8	Nitrilotriacetic Acid	Cancer
00106-46-7	Para dichloro benzene	Cancer / Inhale Poison
00127-18-4	Tetrachloroethylene; Perchloroethylene “PERC”	Cancer / Skin & Inhale Poison
00108-88-3	Toluene	Skin Poison
	Tributyl Tin	Illegal
00079-01-6	Trichloroethylene	Inhale Poison

Use Extreme Care (Avoid if Possible)

If at all possible, avoid janitorial products with these ingredients. They pose very high risks to the janitor using the product, to building occupants, or to the environment. If there are no substitutes available, then assure that workers are fully trained in safe handling and use, and assure that protective gloves and goggles are worn at all times.

CAS Number	Ingredient Name	Problems
00111-76-2	2-Butoxy Ethanol	Skin Poison
00090-43-7	2-Phenyl Phenol	Eye & Skin Burns
00067-64-1	Acetone	Skin/Inhale Poison
07664-41-7	Ammonia	Corrosive
01341-49-7	Ammonium Bifluoride	Corrosive
01336-21-6	Ammonium Hydroxide	Corrosive
00628-63-7	Amyl Acetate	Poison
00124-07-2	Caprylic Acid	Corrosive / Skin Poison
00084-74-2	Dibutyl Phthalate	Hormone Modifier
00112-34-5	Diethylene Glycol Monobutyl Ether	Skin Poison
07647-01-1	Hydrochloric Acid	Corrosive
07722-84-1	Hydrogen Peroxide	Corrosive
00079-14-1	Hydroxyacetic Acid	Corrosive
00141-43-5	Monoethanolamine	Burns / Skin Poison
09016-45-9	Nonyl Phenol Ethoxylate	Hormone Modifier
09036-19-5	Octyl Phenol Ethoxylate	Hormone Modifier
07664-38-2	Phosphoric Acid	Corrosive
26027-38-3	Polyethylene Monophenyl Ether	Hormone Modifier / Burns
07681-51-9	Sodium Hypochlorite; Bleach	Corrosive
00102-71-6	Triethanolamine	Skin Poison
01330-20-7	Xylene	Burns / Skin & Inhale Poison

Use Extreme Care With These Ingredients

These ingredients are dangerous, but may have to be used because safer substitutes are not readily available. Assure that workers are fully trained in safe handling and use, and assure that protective gloves and goggles are worn at all times (particularly when handling concentrated solutions). Also take care when disposing of left over product, wastewaters, and empty containers.

CAS Number	Ingredient Name	Problems
00872-50-4	1-Methyl 2-Pyrolidinone	Burns
08001-54-5	Alkyl Dimethyl Benzyl Ammonium Chloride	Burns
00334-48-5	Capric Acid	Skin Poison
00111-46-6	Diethylene Glycol	Skin Poison
00115-10-6	Dimethyl Ether	Burns
29911-28-2	Dipropylene Glycol Butoxy Ether	Skin Poison Burns
25155-30-0	Dodecyl Benzene Sulfonate	Burns
27176-87-0	Dodecylbenzne Sulfonic Acid	Burns
00064-17-5	Ethanol	Skin/Inhale Poison
00122-99-6	Ethylene Glycol Phenyl Ether	Burns
00067-63-0	Isopropanol	Skin & Inhale Poison / Burns
08008-20-6	Kerosene	Inhale Poison / Burns
00067-56-1	Methanol	Inhale Poison
02809-21-4	Phosphonic Acid	Corrosive
07320-34-5	Potassium Diphosphate	Burns
01310-58-3	Potassium Hydroxide	Burns
07681-38-1	Sodium Bisulfate	Corrosive
00497-19-8	Sodium Carbonate	Corrosive
01310-73-2	Sodium Hydroxide	Corrosive
06834-92-0	Sodium Metasilicate	Corrosive
05329-14-6	Sulfamic Acid	Burns
08052-41-3	Stoddard Solvent	Poison

Use Routine Care With These Ingredients

Some of these ingredients are dangerous, but risks of them getting into the body to do harm are relatively low. For example, several of these ingredients have to be eaten in order for toxic effects to be felt. Others are toxic only at concentrations and quantities that are much higher than occur in janitorial products.

As with any chemical, assure that workers are fully trained in safe handling and use, and assure that protective gloves and goggles are worn at all times (particularly when handling concentrated solutions). Also take care when disposing of left over product, wastewaters, and empty containers.

CAS Number	Ingredient Name	Problems
00770-35-4	1-Phenoxy-2-Propanol	Inhale Irritant
00064-19-7	Acetic Acid	Irritant / Burns
00120-32-1	Chlorophene	Poison
05989-27-5	d-Limonene	Inhale Irritant
00111-90-0	Diethylene Glycol Monoethyl Ether	Inhale Poison (Slight)
00111-77-3	Diethylene Glycol Monomethyl Ether	Poison
02809-21-4	Diphosphonic Acid	Poison
34590-94-8	Dipropylene Glycol Methyl Ether	Skin Poison (Slight)
17572-97-3	EDTA Tetrapotassium Salt	Irritant
00064-02-8	Ethylene Diamine Tetraacetic Acid	Irritant
00097-86-9	Isobutyl Methacrylate	Irritant
67741-65-7	Mineral Spirits	Irritant
08030-30-6	Naphtha	Inhale Poison
05324-84-5	Octane Sulfonic Acid	Skin Poison (Slight)
68441-17-8	Oxidized Polyethylene	Irritant
63148-62-9	Poly Dimethyl Siloxane	Irritant
07757-82-6	Sodium Sulfate	Irritant
07758-29-4	Sodium Tripoly Phosphate	Irritant
01300-72-7	Sodium Xylene Sulfonate	Skin Poison (Slight)

2.3 Questions For Evaluating Products

Here are about 30 questions that you can use to evaluate the risks of janitorial products. It takes quite a bit of effort to answer all of the questions, so it's best to focus on the product characteristics that pose a higher hazard to you than others. For details see the following pages.

Health & Safety Impacts	How easy is it to use this question?	Do you want to use this question?
Carcinogenic / Prop. 65	Easy	
Reproductive Hazard - Mutagen	Hard	
Reproductive Hazard - Teratogen	Hard	
Endocrine Modifier	Medium	
Corrosivity / pH	Easy	
Flammability / Flash Point	Easy	
Reactivity	Easy	
Eye Irritant	Medium	
Skin Irritant	Medium	
Inhalation Irritant	Medium	
Ease of Skin Absorption	Hard	
Ease Of Inhalation / Vapor Pressure	Hard	
Overall Toxicity (LD50)	Medium	
Environmental Impacts		
Ozone Depleting Substance	Easy	
Global Warming Substance	Easy	
Hazardous Waste	Medium	
Stormwater Pollutant	Hard	
Sanitary Sewer Pollutant	Hard	
Persistence / Biodegradability / Bioaccum.	Hard	
Indoor Air Quality	Hard	
Phosphates	Medium	
Volatile Organic Compounds	Medium	
Other Impacts		
Has Added Fragrance	Hard	
Has Added Dye	Hard	
Packaged As Concentrate / Mixing System	Medium	
Safe Container	Medium	
Refillable Container	Medium	
Container Made Of Recycled Material	Medium	
Non-Aerosol Container	Medium	

Source: http://www.westp2net.org/Janitorial/jp4.htm

Product Risk Evaluation Questions

Impacts	Description Of Criteria	Where To Get Information
Carcinogenic / Prop. 65 List	Does the product contain ingredients that are known or suspected of causing cancer, either in animals or humans? Example: Tetrachloroethylene Nitrilo Triacetic Acid Recommendation: Avoid products that have even trace amounts of cancer causing ingredients.	Material Safety Data Sheet (MSDS) for the product, or MSDSs for each ingredient, or published cancer studies. Cancer studies are available for only a few of the many hundreds of ingredients used in janitorial products. California's Proposition 65 chemical list is available on the internet.
Reproductive Hazard - Mutagen	Known or suspected of interfering with conception, either in animals or humans? Example: Tetrachloroethylene Recommendation: Avoid even trace amounts of such ingredients.	MSDS for the product, or separate MSDSs for its ingredients, or published toxicology studies.
Reproductive Hazard - Teratogen	Known or suspected of interfering with fetal development, either in animals or humans? Example: Tetrachloroethylene Recommendation: Avoid even trace amounts of such ingredients.	MSDS for the product or its ingredients, or published toxicology studies.
Endocrine Modifier	Known or suspected of interfering with hormone systems, either in animals or humans? Example: Alkylphenol Ethoxylate Dibutyl Phthalate Recommendation: Avoid even trace amounts of such ingredients. Although in normal use these ingredients do not affect the janitor, they do persist in the environment and affect fish and other animals, and can contaminate drinking water used by humans.	Contact product supplier for information - these ingredients are not yet required by OSHA to be listed on the MSDS. Refer to our project web site for links to internet sites with information about endocrine modifiers.

Corrosivity / pH	Will the product cause burns, or destroy skin, or cause blindness? Is the pH below 4 or above 11.5? Examples: Hydrochloric Acid Sodium Hydroxide Recommendation: Avoid corrosive ingredients (high or low pH) where possible. If no alternatives are available, then use product with extreme care.	MSDS for the product or its ingredients. Older MSDSs may not include pH.
Flammability / Flash Point	Is the product flammable or extremely flammable? Is the flash point below 140 F? Is the NFPA or HMIS fire rating 2 or higher? Examples: Propane (Aerosol Propellant) Isopropanol Toluene Recommendation: Avoid flammable (low flash point) ingredients where possible. Change to non-aerosol products if it is the propellant that causes the fire rating to exceed 2..	MSDS for the product or its ingredients.
Reactivity	Does the product contain ingredients that combine violently with other chemicals? Is the NFPA or HMIS reactivity rating 2 or higher? Examples: Bleach & Ammonia Bleach & Acid Recommendation: Avoid reactive ingredients where possible. Keep incompatible products away from each other.	MSDS for the product or its ingredients.

Eye Irritant	Does the product contain ingredients that irritate the eyes "moderately" or "severely", or cause eye burns, or cause blindness? Examples: Hydrochloric Acid Ammonium Hydroxide Recommendation: Where possible, avoid ingredients that cause moderate eye irritation or worse. Otherwise use such products with extreme care.	MSDS for the product or its ingredients. Ask the supplier for eye irritation test data. Once scarce, these data are now becoming available for more products.
Skin Irritant	Does the product contain ingredients that irritate the skin "moderately" or "severely", or cause skin burns, or damage/scar the skin? Examples: Hydrochloric Acid Sodium Hydroxide Recommendation: Where possible, avoid ingredients that cause moderate skin irritation or worse. Otherwise use such products with extreme care.	MSDS for the product or its ingredients. Ask the supplier for skin irritation test data. Once scarce, these data are now becoming available for more products.
Inhalation Irritant	Does the product contain ingredients that irritate the nose, throat, or lungs "moderately" or "severely", or cause burns, or damage/scar the air passage? Examples: Hydrochloric Acid Sodium Hydroxide Recommendation: Where possible, avoid ingredients that cause moderate irritation or worse. Otherwise use such products with extreme care.	MSDS for the product or its ingredients.
Ease of Skin Absorbtion	Does the product contain ingredients that readily absorb through the skin, and that then damage or poison the kidneys, liver, or other internal organs? Examples: 2-Butoxyethanol Ethanolamine Acetone Recommendation: Where possible, avoid ingredients that can be absorbed through skin. Otherwise use such products with extreme care.	MSDS for the product or its ingredients. Ask the supplier for skin absorbtion test data. These data are available for only a few products and ingredients.

Ease of Inhalation / Vapor Pressure	Does the product contain ingredients that evaporate readily, and therefore are easy to inhale, and that then damage or poison the kidneys, liver, or other internal organs? Is the vapor pressure of the product or its most toxic ingredients more than 18 millimeters of mercury measured at 20 C? Examples: Isopropanol Tetrachloroethylene Recommendation: Where possible, avoid toxic ingredients that evaporate faster than water. Otherwise use such products with extreme care, provide good ventilation, and wear a breathing mask.	MSDS for the product or its ingredients.
Overall Toxicity (LD50)	Is the product or any of its ingredients highly toxic? Is the LD50 (oral - rat) for any ingredient less than 500 mg/kg? Examples: Naphthalene Quaternary Ammonium Chloride Recommendation: Where possible avoid ingredients that are highly toxic. Otherwise use such products with extreme care.	MSDS for the product or its ingredients.
Ozone Depleting Substance	Does the product contain any ingredient that evaporates readily and affects the earth's ozone layer? Examples: CFC-12 HCFC - 141 Recommendation: Do not use any product with ingredients that harm the earth's ozone layer.	MSDS for the product or its ingredients.
Global Warming Substance	Does the product contain any ingredient that evaporates readily and affects the earth's ozone layer? Examples: CFC-12 HCFC - 141 Recommendation: Do not use any products with ingredients that have a global warming potential.	MSDS for the product or its ingredients.

Hazardous Waste	Does the product contain any ingredient regulated under SARA Title III? Examples: Glycol Ethers Methylene Chloride Recommendation: Where possible avoid ingredients that are listed by SARA Title III. Otherwise use such products with extreme care.	MSDS for the product or its ingredients.
Stormwater Pollutant	If the product is to be used outdoors, does it contain any ingredients that are considered stormwater pollutants. Examples: Most Chemicals Recommendation: Do not use products containing stormwater pollutants outdoors, unless steps are taken to collect wastes before they can reach stormwater system.	Newer MSDSs (with 16-part format) might describe stormwater requirements. Otherwise ask local stormwater management agency for guidance.
Sanitary Sewer Pollutant	Will any unused product or any wastes be put into the sewer? If yes, does the product contain any ingredients regulated by the local sewer agency? Examples: High or low pH Toxic Organics Zinc & other metals Recommendation: Do not use products containing sanitary sewer pollutants, unless steps are taken to ship wastes off-site rather than putting them into the sewer system.	A few MSDSs mention specific ingredients of concern to local sewer agencies. Ask your local agency for guidance.
Persistence / Biodegradability / Bioaccumulation	Does the product contain any toxic ingredients that persist in the environment and bioaccumulate? Examples: Dibutyl Phthalate Alkylphenol Ethoxylate Recommendation: Do not use products containing ingredients that are not readily and fully biodegraded in the sanitary sewer system.	A few MSDSs mention specific ingredients of concern in this area. Contact product supplier and ask for their ecological fate assessment of the product. Ask your local county health agency for guidance.

Indoor Air Quality	Does the product contain any ingredient that evaporates easily, and that has a smell, is flammable, or is toxic? Examples: Isopropanol d-Limonene Recommendation: Where possible avoid ingredients that affect indoor air quality. Otherwise use such products with extreme care, with good outside ventilation, and at times when the building is empty.	MSDS for the product or its ingredients. Look for added unnecessary fragrances, flammables, and other volatile ingredients.
Phosphates	Does the product contain phosphates? Example: Trisodium Phosphate Recommendation: Where possible use products with no phosphates, or very low phosphate levels. In any case, be sure phosphate levels are less than required by local sewer agency.	MSDS for product.
Volatile Organic Compounds	Does the product have higher VOC levels than are allowed by California air quality rules? Example: General purpose cleaners must have less than 10% VOC content. Recommendation: Where possible do not use products containing any VOCs. If VOC ingredients are needed, assure that the VOC % is as low as possible.	MSDS for the product or its ingredients. Look for unnecessary added fragrances, flammables, and other volatile ingredients.
Has Added Fragrance	Does the product have a separate fragrance in addition to the natural odors of its other ingredients. Example: Lemon Oil Recommendation: Do not use products with unnecessary fragrances.	Product MSDS. Ask supplier for unscented products.
Has Added Dye	Does the product have a separate dye in addition to the natural colors of its other ingredients. Example: F&D Red Recommendation: Do not use products with unnecessary dyes.	Product MSDS. Ask supplier for uncolored products, or for ones where the color serves to identify different products.

Packaged As Bulk Concentrate / Mixing System	Is the product available as a concentrate? Example: Disinfectant Recommendation: If you have trained people responsible for mixing, and have safe mixing systems, then purchase concentrates. Otherwise buy only ready-to-use (RTU) products.	Ask supplier for mixing systems, dispensers, and mixing guides.
Safe Container	Is the product container spill resistant? Are product containers shipped in spill resistant packaging? Are the container and trigger strong enough to survive routine use? Example: Trigger assembly shipped separate with product in containers having tightly closed screw tops. Recommendation: Consider container safety when selecting products.	Ask supplier about spill resistant containers and packaging.
Refillable Container	Is the product container refillable? Example: Trigger bottles that can be refilled at a dispensing station. Recommendation: Use products that come in refillable containers.	Ask supplier about refillable containers and dispensing systems.
Container Made Of Recycled Material	Is the product container made of recycled plastic? Are shipping packages made of recycled cardboard? Example: Trigger bottles Recommendation: Use products whose shipping containers and trigger bottles are made of recycled materials.	Ask supplier about recycled content of containers and packaging.
Non-Aerosol Container	Is the product sold as an aerosol? Example: Baseboard stripper Furniture polish Glass Cleaner Graffiti Remover Recommendation: Where possible buy non-aerosol products.	Ask supplier for non-aerosol version of products.

2.4 Using MSDSs To Evaluate Products

Your group will be given sample material safety data sheets to review. Read these MSDSs and answer the following shortened list of questions. Then decide which product is the safest for you to use.

	Product 1	Product 2	Product 3
Product Name			
Manufacturer			
MSDS Date			
List Hazardous Ingredients			
Are there any Volatile Organic Compounds (VOCs)?			
Product corrosive? What is the pH?			
Product flammable? What is the Flash Point?			
NFPA Rating? Health Fire Reactivity			
Health Hazards? Eyes? Skin? Inhalation? Absorbtion? Cancer? Other?			
Is this MSDS Complete?			
Which is the safest product?			

Example Review of Janitorial Product

Present Product	Health, Safety & Environment Issues	Suggestions
Vandalism Remover (Aerosol) [H2 / F4 / R0] MSDS - Date	Eye - Can cause blindness. Skin - Can cause damage & leave scars. Cancer - Tetrachloroethylene and methylene chloride are both listed by Prop. 65 as causing cancer in humans. Tetrachloroethylene is also a human mutagen and teratogen. Inhalation - Toluene, tetrachloroethylene, and methylene chloride can affect liver, kidneys, and central nervous system. High amounts can cause death. Air - Affects indoor air quality. Sensitive building occupants will be affected. Fire - Extremely flammable Sewer - If discharged would cause site to exceed its limits for toxic organics. Endocrine - Contains Nonyl phenol ethoxylate, a chemical that persists in the environment, accumulates in animals, and damages their hormone systems.	**Stop Using this product.** Continued use would potentially harm the janitor, building occupants, and the environment in general. Change to a safer alternative. Return all containers to the supplier, or dispose of as hazardous waste.

How We Evaluate Product Ingredients

"Stop Using" or "Do Not Use"

Janitorial products with these ingredients pose unacceptable risks to the janitor, to building occupants, or to the environment. Gloves and goggles, may not be enough to fully protect the user from harm. In some instances the ingredients are illegal for janitorial products.

A "Skin Poison" can absorb through your skin and poison your liver, kidneys, and other internal organs. An "Inhale Poison" harms you when you breath the fumes. "Corrosive" means that the chemical will permanently destroy your eyes and skin.

"Avoid If Possible"

If at all possible, avoid janitorial products with these ingredients. They pose very high risks to the janitor using the product, to building occupants, or to the environment. If there are no substitutes available, then use with extreme care and assure that workers are fully trained in safe handling and use, and assure that protective gloves and goggles are worn at all times.

"Use With Extreme Care"

Ingredients of this kind are dangerous, but may have to be used because safer substitutes are not readily available. Assure that workers are fully trained in safe handling and use, and assure that protective gloves and goggles are worn at all times (particularly when handling concentrated solutions). Also take care when disposing of left over product, wastewaters, and empty containers.

"Use With Routine Care"

Some of these ingredients are dangerous, but risks of them getting into the body to do harm are relatively low. For example, several of these ingredients have to be eaten in order for toxic effects to be felt. Others are toxic only at concentrations and quantities that are much higher than occur in janitorial products.

As with any chemical, assure that workers are fully trained in safe handling and use, and assure that protective gloves and goggles are worn at all times (particularly when handling concentrated solutions). Also take care when disposing of left over product, wastewaters, and empty containers.

2.5 Selecting Protective Equipment

The material safety data sheet should tell you what kinds of protection to wear for safe handling of the product. For most janitorial products the MSDS will tell you to wear gloves and goggles, and perhaps a plastic apron.

Gloves

Heavy duty chemical resistant gloves are the best. Buy various sizes so that your people can find a pair that fits.

If anyone has a problem with their hands sweating too much, then give them cloth glove liners. These absorb sweat and make the gloves more comfortable. Another thing to do to make gloves more comfortable is to use a hand cream before putting the gloves on. One choice is antibacterial hand cream like what is used in hospitals and doctors' offices. Such creams are available in drug stores.

Goggles

Plastic wrap-around soft-shell goggles are best for preventing chemical splashes from hitting your eyes. The soft edges fit closely to your face and prevent liquids from reaching your eyes. However, these goggles are uncomfortable, and can fog up. To deal with these problems, buy the softest rubber goggles you can find. Also get cleaning sprays that keep the lenses from fogging as badly (although nothing can keep lenses totally clear).

Impact goggles are meant primarily for protecting your eyes from flying objects. They provide some protection from splashed chemicals, but not as much as the wrap-around type. Because they are more comfortable and do not fog as badly, many people like these goggles better than the splash-proof kind. In deciding which goggles to buy you have to make a trade off between protection and comfort.

Apron

Using a plastic apron can be important when opening and mixing products. This is particularly true for when you are handling concentrated chemicals that you are diluting with water.

Eyewash and Shower

California OSHA requires that an eyewash and shower be provided within 10 seconds reach of any employee who is handling corrosive chemicals (like floor finish stripper or acid toilet bowl cleaner).