Environment
INFORMATION FROM KODAK

J-98A

Safe Handling of Photographic Processing Chemicals

Introduction

Every substance we come in to contact with is composed of chemicals—the food we eat, the air we breathe, the clothing we wear, the medicine we take. Although most of these chemicals are not hazardous, you may need to take precautions to limit the exposure to some chemicals that could be harmful. For example, direct skin or eye contact with or inhalation of vapors or mists from some household cleaning products can be irritating.

When handled properly, photographic processing chemicals are safe to use. Follow the guidelines below to minimize the potential hazardous effects of these chemicals.

Be Informed

Safe handling of chemicals requires that you recognize and avoid the potential hazards. Learning more about photographic processing chemicals reduces the possibility of illness or injury.

Labeling

Kodak provides warning and precautionary statements on product labels, instruction sheets, and packaged products. Kodak also provides labels for processor and replenishment tanks. Kodak evaluates photographic processing chemicals for potential health and physical hazards. When a photographic processing chemical has little, if any, potential hazard, the statement "LOW HAZARD FOR RECOMMENDED HANDLING" is included on the label.

Photographic processing chemicals that are potentially hazardous have appropriate precautionary statements, such as:

- **A Signal Word**—such as "CAUTION," "WARNING," or "DANGER!"
- **A Statement of Hazard—**such as "CAUSES SKIN AND EYE BURNS," "HARMFUL IF ABSORBED THROUGH SKIN," or "FLAMMABLE," that tells what the potential hazard is.
- **Precautionary Wording—**such as "Do not get in eyes, on skin, or on clothing," or "Keep away from heat, sparks, and flame," that describes how hazards can be avoided.
- **First-Aid Statements** are also included on labels and signs that describe immediate measures you must take in case of contact with or overexposure to a photographic processing chemical.

Kodak's health, safety, and environmental publications are available to help you manage your photographic processing operations in a safe, environmentally sound and cost-effective manner. This publication is a part of a series of publications on health and safety issues affecting photographic processing facilities. It will help you understand safe handling of photographic processing chemicals.

Kodak Environmental Services

Your Lab's Health and Safety Program

The Occupational Safety and Health Administration (OSHA) Hazard Communication Standard requires chemical manufacturers to provide Material Safety Data Sheets (MSDSs) for hazardous chemicals. OSHA also requires employers to make MSDSs available in the workplace for the purpose of proper chemical container labeling, and training employees on the safe use of chemicals.

Material Safety Data Sheets

Photographic processing facilities are required by OSHA to have MSDSs for all hazardous chemicals. MSDSs provide detailed information about each product.

Information included in MSDSs is outlined in the following categories:

- chemical and manufacturer identification
- composition / ingredients
- hazard identification
- first-aid measures
- fire-fighting measures
- accidental release measures
- handling and storage
- exposure controls and personal protection
- physical and chemical properties
- stability and reactivity
- toxicological issues
- ecological issues
- disposal issues
- transport issues
- regulatory issues, and other information.

Kodak provides customers with MSDSs for all photographic processing chemicals. If you need replacement(s) or extra MSDSs for any Kodak chemical, call 1-800-242-2424, extension 43. You will need to supply the catalog (CAT) number of the products for which you need MSDSs.

Training

OSHA requires that all employees be trained on the safe handling of photographic processing chemicals and general lab safety prior to their initial assignment and whenever new hazards are introduced into the workplace. Employees should be familiar with the OSHA Hazard Communication Standard, operations where hazardous chemicals are present, the location and content of Material Safety Data Sheets, physical and health hazards of chemicals in their work area, as well as additional topics. For more information on OSHA's Hazard Communication Standard, see KODAK Publication No. J-311, *Hazard Communication for Photographic Processing Facilities.*

Handle Chemicals Properly

Once you know the hazards, learn how to handle chemicals safely. Safe handling practices include wearing personal protective equipment, following procedures that minimize chemical contact, and following the instructions on chemical labels. If contact occurs, know how to treat or obtain medical / first-aid assistance.

Personal Protective Equipment

OSHA requires that personal protective equipment (PPE) be used in the workplace whenever the possibility of chemical contact exists. OSHA also requires that you perform a hazard assessment in your facility to determine what type of PPE is required to protect against the hazards present. In general, the PPE required for handling photographic processing chemicals includes:

- Neoprene or nitrile gloves
- Safety goggles
- Vinyl rubber apron or lab coat

Check personal protective equipment often to make sure it is in good working condition, clean, and works and fits properly. Training must be provided on the use, limitations, maintenance, and how to wear PPE. For more information, see KODAK Publication No. J-312, *Personal Protective Equipment Requirements for Photographic Processing Facilities.*

Corrosive Materials

Certain photographic processing chemicals contain materials that can burn or irritate the skin and eyes, sometimes with only brief contact. To reduce the possibility of injury, always wear personal protective equipment when handling photographic processing chemicals. Also make sure an emergency eye wash station is readily available.

Contact Dermatitis

Dermatitis is the medical term used to describe a skin inflammation. Contact with some materials, such as acids and bases, can cause *irritative contact dermatitis,* while other chemicals, such as photographic developers, may cause *allergic contact dermatitis.*

Early symptoms of **irritative contact dermatitis** may include dry, red, cracked or scaly skin at the site of contact. Symptoms may worsen with continued chemical exposure. In most cases of **allergic contact dermatitis,** the symptoms are itchy blisters similar to those seen from exposure to poison ivy or poison oak. Although the rash is usually confined to the site of contact, most often fingers, hands, and forearms, it may spread to other areas.

Sometimes people can work with a chemical for years without any noticeable effect, only to develop contact dermatitis at a later date. The time between contact and when a response develops varies widely among individuals. People with a history of skin allergies, eczema, or other skin disorders may be more susceptible to the effects of contact with chemicals.

If you think you have developed contact dermatitis, contact your manager. A medical examination may be required to determine the cause of the problem. **Do not** attempt to self-medicate with lotions or creams; they may make the problem worse.

To **prevent contact dermatitis** when handling photographic processing chemicals, follow these guidelines:

- ***Read the labels*** on chemical containers so you know what precautions to take when handling the contents.
- ***Avoid contact* with chemicals whenever possible**. Handle chemical solutions carefully to avoid splashing. Keep all PPE (gloves, goggles, apron, etc.) free of chemical residues.
- ***Wear the proper gloves.*** Do not use gloves sold for household use; they may not be durable enough for handling photographic processing chemicals. Neoprene or nitrile gloves protect you from photographic processing chemicals. To minimize the possibility of chemicals coming in contact with your bare hands, rinse gloves thoroughly with water before taking them off. On a regular basis or if chemicals get inside the gloves, wash them inside and out, and hang them by the fingertips to dry.
  - Check gloves regularly for pinholes, leaks, or tears.
  - Dispose of gloves when they are damaged or begin to degrade.
- **In case of contact with chemicals, *wash your hands* or other affected skin areas immediately** with plenty of water. If you get an alkaline solution, such as developer, on your skin, wash with a pH-balanced cleanser (like Phisoderm, Sulfo Hand Cleaner, or pH6). Ordinary soaps, which are alkaline, may not be as effective.
- ***Protect skin abrasions or cuts*.** The risk of contact dermatitis is increased if chemicals penetrate the skin. Skin damage by cuts or abrasions is especially susceptible to irritants.
- ***Change and launder clothing* worn while handling chemicals.** If photographic processing chemicals are splashed or spilled on your clothes, immediately rinse the clothes to remove the chemical residue. Wash contaminated clothing before wearing it again.
- ***Clean-up chemical spills* or splashes immediately.** Always wear personal protective equipment when cleaning up spilled photographic processing chemicals.
- ***Immediately report any unusual skin condition*** that you think might be related to photographic processing chemicals to your manager and to your physician. Conditions such as contact dermatitis can be caused by materials other than photographic processing chemicals; dermatitis usually will not improve until the cause is found and the condition is properly treated.

Absorption of Chemicals Through the Skin

Some chemicals are able to enter the body by absorption through the skin. A variety of factors determine the effects of these chemicals including the toxicity of the chemical, its concentration and the duration of skin contact. Chemicals can have a toxic effect even without skin irritation. If tests indicate that a photographic processing chemical may be absorbed through the skin in amounts that could cause an adverse effect, the product label will include a precautionary statement, such as "HARMFUL IF ABSORBED THROUGH THE SKIN." Always wear personal protective equipment when handling these chemicals.

Ventilation

Proper ventilation is important to assure a safe and comfortable indoor air environment for photographic processing areas. Several common potential indoor air contaminants can be associated with photographic processing. These include acetic acid, sulfur dioxide, and ammonia. These chemicals may be eye- and respiratory-tract irritants depending on their airborne concentrations. Exposure guidelines and standards for these chemicals have been established by OSHA and other agencies which represent concentrations under which it is believed that nearly all employees may be repeatedly exposed without adverse health effects. If significant eye- or respiratory-tract irritation occurs during normal photographic processing or maintenance operations, this may indicate elevated levels of these materials and the need for better control.

Exposure Studies

Kodak studies of potential worker exposure during automated photographic processing operations indicate that vapors and gases can be controlled to acceptable levels through good general room ventilation. However, in some cases, local exhaust for enclosed and / or open tanks may be recommended.

Specific recommendations that have been proven to be effective in minimizing airborne levels of photographic processing chemicals include:

- **General Ventilation**
  Dilution ventilation or general ventilation is simply bringing in and distributing enough fresh uncontaminated air (preferable outdoor air) to dilute the indoor air contaminants to an acceptable level.
  - For minilab operations, the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) recommends a minimum general dilution ventilation of 0.5 cubic feet minute per square foot (cfm / ft^2) of floor area. This should be effective in controlling air contaminants associated with photographic processing. In some cases, venting the dryer section of the processor to the outdoors may be appropriate to prevent excess humidity and odors in the workplace.
- **Effective Covers**
  Covers on photographic processing equipment and chemical storage tanks can be an effective control mechanism for minimizing the amount of gases, vapors, and mists that may enter the work area. Covers should be made from durable non-reactive materials and should cover as much of the open surface as possible. In many cases, effective equipment covers combined with good general room ventilation, proper operation, and maintenance may be all that is needed to control odors and airborne exposure to photographic processing chemicals.
- **Proper Equipment Operation and Maintenance**
  Indoor air quality can be impacted by how the processing equipment is operated and maintained. It is important to follow the manufacturer's recommended operating procedures for operating temperatures, agitation of processing solutions, and processing speeds.

In addition, draining and flushing processing equipment tanks with cold water prior to rack removal or maintenance operations can also be effective at controlling short-term exposures to photographic processing solutions.

For more detailed information see KODAK Publication No. J-314, *Indoor Air Quality and Ventilation in Photographic Processing Facilities.*

Know First-Aid in Case of An Emergency

Appropriate first-aid treatment is included in the MSDS and on the product and processor labels. First-aid should be used for immediate treatment in the event of an emergency and is not intended to replace medical attention, when necessary. **Do not** administer first-aid to others unless you have been specifically trained to do so.

Chemical Splashes

If a chemical gets into a person's eye(s), use the eyewash station to thoroughly flush the eye(s). Get medical attention, if necessary.

If you get chemicals on your clothing, thoroughly rinse the affected clothes to remove all of the chemical residue. Use water to rinse the skin area where the chemical

contact took place. If the chemical is a developer, wash with a pH-balanced cleanser, like Phisoderm, Sulfo Hand Cleaner, or pH6. Wash contaminated clothing before wearing it again. Thoroughly clean contaminated shoes; if they can not be cleaned, discard them.

Swallowed Chemicals

Immediately identify which chemical was swallowed and follow the first-aid recommendations on the container / processor label and in the MSDS. Call a physician or poison-control center as quickly as possible; make sure you have the MSDS with you when you call.

Inhaled Vapors and Gases

Immediately get fresh air. If symptoms persists, get medical attention.

Store Chemicals Safely

- **Keep containers easily accessible—**Always store photographic processing chemical containers in a designated area, away from heavy traffic, where they can be identified and inventoried, if necessary. Position containers in an area where you can easily reach without having to stretch.
- **Do not remove chemical labels** that come on chemical containers. Container labels include the chemical name, appropriate hazard warnings, and precautionary measures where applicable.
  - Processor tanks and other storage tanks also need to be properly labeled. Kodak provides hazard warning labels for this purpose.
- **Use the proper containers—** photographic processing chemicals should only be stored in the containers in which they were originally delivered. **Do not** transfer chemicals into any other containers.
- **Keep corrosive materials separated—**store corrosive materials away from any materials with which they may react, and away from other incompatible materials. See the stability and reactivity section on the MSDS for more information.

Properly Dispose of Photographic Processing Chemicals

Always follow the procedures designated for your photographic processing facility when disposing of photographic processing chemicals. These disposal procedures are based on local, state, and federal requirements that regulate the disposal of photographic processing chemicals.

If your facility discharges waste solutions, make sure you have reviewed the local sewer discharge requirements for your area. use silver-recovery methods for silver-bearing effluents (e.g., used fixers, bleach-fixes, and stabilizers). Also, know what other materials may be discharged to a common drain. **Never** pour any photographic processing chemicals into a drain where cleaning agents containing chlorine are present, *unless* the drain has been *thoroughly* rinsed. Run plenty of water down the drain, prior to disposing of photographic processing chemical effluents, then thoroughly rinse the drain again after the disposal of effluents.

For more information on silver recovery, see KODAK Publication J-212, *The Technology of Silver Recovery for Photographic Processing Facilities*.

If **off-site treatment** (hauling) is used for the disposal of waste photographic processing solutions, make sure the only solutions poured into the waste drum(s) are photographic processing solutions.

Regardless of the type of recovery or disposal procedure you use in your facility, maintain the system so overflows and spills do not occur.

Safe Handling of Photographic Processing Chemicals is Easy When You Use Common Sense and When You:

- Know the chemicals you are handling.
- Read the MSDSs and container labels.
- Use care when moving containers from one location to another.
- Store photographic processing chemicals safely.
- Do not eat, drink, or smoke in chemical handling areas.

Kodak
Environmental
Services

More Information

If you have environmental or safety questions about Kodak products or services, contact Kodak Environmental Services at 716-477-3194, between 8 a.m. and 5 p.m. (Eastern time).

Kodak also maintains a 24-hour health hotline to answer questions about the safe handling of photographic chemicals. If you need health-related information about Kodak products, call 716-722-5151.

For questions concerning the safe transportation of Kodak products, call Kodak Transportation Services at 716-722-2400.

The products and services described in this publication may not be available in all countries. In countries other than the U.S., contact your local Kodak representative, or your usual supplier of Kodak products.

Kodak has many publications to assist you with information on Kodak products, equipment, and materials. The following publications are available from dealers who sell Kodak products, or you can order them directly from Kodak through the order form in KODAK Publication No. L-1, *KODAK Index to Photographic Information*. To obtain a copy of L-1, send your request with $1 to Eastman Kodak Company, Department 412-L, Rochester, New York 14650-0532.

J-110 *Formaldehyde Use in Photographic Processing Facilities*

J-111 *Determining Workplace Exposure to Formaldehyde*

J-112 *Formaldehyde Emergencies*

J-113 *About the OSHA Formaldehyde Standard*

J-311 *Hazard Communication for Photographic Processing Facilities*

J-312 *Personal Protective Equipment Requirements for Photographic Processing Facilities*

J-313 *Occupational Noise Exposure Requirements for Photographic Processing Facilities*

J-316 *Emergency Preparedness for Photographic Processing Facilities*

J-317 *Injury and Illness Management for Photographic Processing Facilities*

Kodak Information Center's Faxback System

—Available 24 hours a day, 7 days a week—

Many technical support publications for Kodak products can be sent to your **fax** machine from the Kodak Information Center. Call:

1-800-242-2424, Ext. 33

If you have questions about Kodak products, call Kodak.

In the U.S.A.:
1-800-242-2424, extension 19, Monday–Friday
9 a.m.– 7 p.m. (Eastern time)

In Canada:
1-800-465-6325, Monday–Friday
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EASTMAN KODAK COMPANY • ROCHESTER, NY 14650

Revised 10/97
Printed in U.S.A.