



APPLIED SURFACE CONCEPTS

DIVISION OF SIFCO INDUSTRIES, INC.
ISO 9001/AS 9100 Registered Quality System

ENVIRONMENTAL, HEALTH AND
SAFETY

GUIDANCE FOR
SIFCO PRODUCTS

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ENVIRONMENTAL, HEALTH AND SAFETY

GUIDANCE FOR SIFCO PRODUCTS

Table of Contents

Receipt and Storage of Solutions	3
Handling and Usage of Solutions	4
Disposal of Used Solutions	6
What is a Hazardous Waste?	6
Hazardous Waste Codes	8
D.O.T. Proper Shipping Names	8
EPA Generator ID Number	9
Hazardous Waste Generator Status	10
Hazardous Waste Drums & Storage Areas	12
Preparing for and Preventing Accidents	12
Planning for Emergencies	13
The Uniform Hazardous Waste Manifest	14
Good Housekeeping and a Safe Environment	16

EHS Handling and Disposition of SIFCO Applied Surface Concepts Products

This overview of various precautionary measures needed for employee safety while using SIFCO Applied Surface Concepts' electroplating, anodizing, and conversion solutions and for proper disposal of the waste products generated is provided by SIFCO Applied Surface Concepts' as a courtesy to its customers. This overview is NOT intended to be a comprehensive and definitive statement of all federal, state, and local laws and/or regulations that may be applicable to your operation. Accordingly, SIFCO strongly recommends that you independently perform a comprehensive review of all such federal, state, and local laws and/or regulations that may be applicable to determine specific requirements for employee safety and proper disposal of waste products.

Receipt and Storage of Solutions

When solutions arrive in your facility, you must segregate all cyanide solutions and store them in a secured (locked) storage area. Segregation of our other solutions is not necessary since they will not cause a hazardous or violent reaction if mixed together. These solutions can be stored in the same area.

Once a dry place has been found to store the solutions, you should have a secondary containment system set up around the storage area in case any leaking occurs from the primary containment, typically the containers in which the product is shipped. Secondary containment is usually necessary in order to prevent the substance from entering the environment. Options include surrounding the containers with absorbent material for liquids, storing the containers in over-pack drums or using commercially available secondary storage platforms called spill decks.

If any solution does get onto the floor, it can be cleaned up with absorbent material and/or a mop and water. Used absorbents and mop water generated from a clean up are considered hazardous waste and shall be disposed of according to Local, State, and Federal Regulations. Do not allow any chemical to enter floor drains or sinks that are connected to the sewer system. Workbench sinks should drain only to satellite containers. Satellite collection containers cannot exceed 55 gallons. These containers can then be periodically emptied into the hazardous waste drums.

Facilities must have an emergency response plan prepared. Emergency response plans list the sequence of actions to be taken by responders in case of emergencies, i.e., spills, fires, floods, etc. The storage of plating solutions should be added to that plan. Facilities should also have a Hazard Communication Program in place.

The purpose of the Hazard Communication Program is to insure that employees are properly trained in the use, handling, and disposal of a hazardous material in order to

avoid any possible health effects from exposure to the material. This is done in accordance with the types of hazardous material at the location and regulatory requirements. Facilities should alert their employees about the presence of any new hazardous materials in the building.

Handling and Usage of Solutions

When handling plating solutions, it is necessary for the operators to use various types of Personal Protective Equipment (PPE) to insure their safety from the possible hazards of inhalation, ingestion, or contact with the plating solutions. Chemical resistant gloves and safety glasses and/or splash goggles must be used at all times when working around open containers of solution. Depending on the amount of splashing or spraying that may occur during the plating process, a safety helmet with a splash shield, chemical resistant aprons, and chemical resistant arm sleeves may need to be used for added protection.

Plating should be done in exhaust-ventilated workstations where the operator and other workers are safe from possible chemical exposure. During the plating process the solutions may generate gases and fumes that are hazardous to workers. These fumes can be controlled with local exhaust ventilation. The local exhaust ventilation system is required to meet OSHA's Permissible Exposure Limit, (PEL) and Short-Term Exposure Limit (STEL). These exposure limits are provided on Section Eight (8) of our MSDS.

Effective exhaust ventilation can be **temporarily** verified with smoke or have a certified industrial hygienist survey the plating areas and conduct certified employee air monitoring utilizing certified airflow monitoring and measuring equipment. Certified employee air monitoring is used to determine and document if any harmful fumes or mists are being generated during the plating operation. This will also ensure compliance with governmental regulations and established permissible exposure limits.

Other basic safety measures to be followed during plating include, but are not limited to:

- Pour only the amount of solutions necessary. Do not over-fill containers to avoid spills and splashes.
- When solution bottles are not in use, close tightly and set out of the way.
- Ensure parts being plated are stable and securely held in place to avoid them falling and causing an injury.
- Keep floor space clear of obstacles and wet areas to avoid slips or falls.
- Keep work areas organized and clear. Keep necessary items within easy reach to avoid over-stretching.

Employees working with solutions need to be properly trained in safe handling, personal protective equipment and safe hygiene practices to protect them from possible hazards. General hazards, safety precautions, first aid procedures, and exposure limits are explained in the MSDS for each solution.

Disposal of Used Solutions

Once the solutions have been used to their maximum potential, they are considered to be a hazardous waste. The waste solutions and rinse waters can be mixed together in an appropriate department of transportation (DOT) certified hazardous waste container. The only exception to this is cyanide containing wastes, which should be kept separate.

Liquid waste should be stored and disposed in molded polyethylene drums (UN 1H1) and solid waste materials (such as anodes, covers, tapes, and wipes) are to be stored and disposed in open head plastic drums (UN 1H2). We recommend you keep a running waste log to record the quantity and type of waste entered into these drums. Waste logs aid in profiling the materials prior to shipping the waste to a treatment, storage and disposal facility (TSDF).

What is a Hazardous Waste?

A waste is any solid, liquid, or contained gaseous material that you no longer use, and either recycle, throw away, or store until you have enough to treat or dispose.

As a result of doing business, a company may generate wastes that can cause serious problems if not handled and disposed of carefully. Such wastes could cause injury or death and may damage or pollute the land, air, or water.

These wastes are considered *hazardous*, and are currently regulated by federal and state public health and environmental safety laws.

There are two ways a waste may be brought into the hazardous waste regulatory system: *listing*, and identification through *characteristics*.

- **Listed wastes.** Your waste is considered hazardous if it appears on any one of the four lists of hazardous wastes contained in the RCRA regulations. These wastes have been listed because they either exhibit one of the characteristics described below or contain any number of toxic constituents that have been shown to be harmful to health and the environment. The regulations list over 400 hazardous wastes, including wastes derived from manufacturing processes and discarded commercial chemical products.
- **Characteristic wastes.** Even if a waste does not appear on one of the EPA lists, it is considered hazardous if it has one or more of the following characteristics:
 - It is easily combustible or flammable. This is called an *ignitable waste*. Examples are paint wastes, certain degreasers, or other solvents.
 - It is unstable or undergoes rapid or violent chemical reaction with water or other materials. This is called a *reactive waste*. Examples are cyanide plating wastes, waste bleaches, and other waste oxidizers.
 - It dissolves metals, other materials, or burns the skin. This is called a

corrosive waste. Examples are waste rust removers, waste acid or alkaline cleaning fluids, and waste battery acid.

- A waste sample is tested and shows extraction procedure (EP) toxicity. Wastes are EP toxic if an extract from the waste is tested and found to contain high concentrations of heavy metals (such as mercury, cadmium, or lead) or specific pesticides that could be released into the ground.

If your facility generates other hazardous wastes beyond the examples mentioned above. It is your responsibility to determine whether your waste is hazardous or not.

Hazardous Waste Codes

Liquid mixtures of hazardous waste may need to be classified with the hazardous waste Code D002 when the material exhibits the characteristic of corrosivity. In accordance with 40 CFR, Subpart C-261.22 a material is corrosive when a representative sample of the waste has either of the following properties:

It is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5. This is sometimes the case with our solutions and can be determined by using a pH meter or pH paper to check the contents when a drum is full.

When the hazardous waste liquid does not fall inside the perimeters for corrosive materials then you may dispose of it as a hazardous waste liquid. Other possible EPA waste numbers for use are located in Section 13 or 14 of the MSDS's for each solution.

D.O.T. Proper Shipping Names

Proper shipping names for solutions can be found in section 14 of each MSDS. Based on our solutions (after being used and mixed together) the following shipping names are used by SIFCO Applied Surface Concepts for transporting and disposing our hazardous waste liquids and solids to the TSDF. You may be able to utilize the shipping names below but you must first classify and profile your waste stream and this will determine the proper shipping name to use for transportation and disposal.

RQ, Hazardous **waste liquid**, n.o.s. (Cadmium, Chromium) 9, UN 3082, PG III
EPA Waste ID# (D006, D007, D008, D011) Emergency Response Guide # - 171

RQ, Waste, **Corrosive liquid**, acidic, organic, n.o.s. (Formic acid), 8, UN3265, PG III.
EPA Waste ID # - (D002 D006, D007, D008, D011) Emergency Response Guide # 153

RQ, Hazardous **waste, solid**, n.o.s. (used filters, anode covers, wipes), 9, NA3077, PG III
EPA Waste ID # - (D006, D007, D008, D011) Emergency Response Guide # - 171

EPA Generator ID Number

In order to dispose of hazardous waste you as a generator must have an EPA Hazardous

Waste Generator Identification Number assigned to your facility. You can obtain the ID number by completing and submitting a Notification of Regulated Waste Activity Form (8700-12) to your local EPA Office. They can also provide information to you on locations of the nearest Treatment, Storage, and Disposal Facility (TSDF) in your area.

As a service to our customers, SIFCO's Environmental Health & Safety Manager may be able to recommend a competitively priced TSDF to receive your waste and a licensed transporter to haul away the electroplating waste generated from our solutions. When contracted, this company would send a representative to your facility and provide you with required information as to proper waste storage, containment and inspection procedures. They would also help profile your waste stream and provide you with the necessary labels and manifests for proper disposal. On a continuing basis this contractor should be available to give you advice on safety, waste disposal, costs and regulatory compliance issues.

Hazardous Waste Generator Status

Small quantity generators (SQG) are those who generate more than 100 kilograms or 220 pounds and less than 1000 kilograms or 2200 pounds of hazardous waste in a calendar month. The facility can only accumulate hazardous waste on site for 180 days or less, without a special permit from EPA and the quantity of the hazardous waste accumulated on-site must never exceed 6000 kilograms or 13200 pounds. When you generate more than the above poundage of hazardous waste in one calendar month at your facility you're a large quantity generator (LQG) unless you file for one time exemption permit.

Small quantity generators of hazardous waste must comply with the following:

- At all times there must be at least one employee on the premises or on call (i.e., available to respond to an emergency by reaching the facility within a short period of time) with the responsibility for coordinating all emergency response measures.
- The employee should be designated as the facilities Emergency Response Coordinator.
- A written Emergency Action Plan (EAP) must be available for use and post the following next to a telephone:
 - a. The name and telephone number of the Emergency Response Coordinator.
 - b. Location of fire extinguishers and spill control material.
 - c. The telephone number of the Local Fire and Police Department.

Generator status has to be verified and you must meet the requirements of the following Code of Federal Regulations (CFR):

- Quantity Limits: Between 100-1000 kg/month per (CFR) 262.34 (d) (1).

- Site Specific, EPA ID Number: per CFR 262.12.
- On Site Accumulation Quantity: < 6000 kg per CFR 262.12.
- Accumulation Time Limits: 180 days or as long as 270 days (if > 200 miles away from the TSDF) per CFR 262.34 (d) and (e).
- Storage Requirements: Basic requirements with Technical Standards for tanks or containers per CFR 262.34 (d) (2) and (3).
- Manifest: Required per CFR 262.20.
- Personnel Training: Basic Training Required per CFR 262.34 (d) (5) (iii).
- Contingency Plan: Basic Plan Required per CFR 262.34 (d) (5) (i).
- Emergency Procedures: Required per CFR 262.34 (d) (5) (iv).
- Transportation Requirements: Yes per CFR 262.30 – 262.33.

If you need copies of any of the above regulations we would be happy to provide them.

Hazardous Waste Drums & Storage Areas

EPA Regulations require hazardous waste drums and hazardous waste storage areas to be inspected on at least a weekly basis to assure the following:

- There are no leaks or spills.
- All containers are marked with the date which accumulation began.
- All containers are labeled or clearly marked with the word *Hazardous Waste*.
- Accumulation times have not been exceeded and aisle space is adequate.
- All containers are in good condition and made of materials compatible with the waste.
- All containers are closed during storage except when in use.
- Hazardous waste containers are handled in a manner, which prevents rupture or leakage.
- Containers are stored separately from other waste or materials that may interact with the waste in a hazardous manner.

The inspection should be documented and the records include:

- a. The date and time of the inspection.
- b. The name of the inspector.
- c. A notation of the observations made.

Preparing for and Preventing Accidents

Whenever you generate hazardous waste and store it on-site, you must take the precautions and steps necessary to prevent any sudden or accidental release to the

environment. This means that you must carefully operate and maintain your facility to reduce the possibility of fire, explosion, or release of hazardous waste.

Your facility must have appropriate types of emergency communication and fire equipment for the kinds of waste handled at your site. You must also attempt to make arrangements with local fire, police, or hospital officials as needed to ensure that they will be able to respond to any potential emergencies that could arise.

Some of the steps you may need to take to prepare for emergencies may include:

- Installing and maintaining emergency equipment such as an alarm, a telephone or a two-way portable radio, fire extinguishers (using water, foam, inert gas, or dry chemicals as appropriate to your waste type), hoses, automatic sprinklers, or spray equipment in your plant so that it is immediately available to your employees if there is an emergency.
- Providing enough room for emergency equipment and response teams to get into any area in your facility in the event of an emergency.
- Writing to local fire, police, and hospital officials or state or local emergency response teams explaining the types of wastes you handle and asking for their cooperation and assistance in handling emergency situations. You may also contract with a local emergency Response team/company.

Planning for Emergencies

A contingency plan is a plan that attempts to look ahead and prepare for any accidents that may possibly occur. It can be thought of as a set of answers to a series of “**what if**” questions. For example: “**What if** there is a fire in the area where hazardous waste is stored?” or “**What if** I have a spill of hazardous waste or one of my containers leaks?”

Emergency procedures are the steps you should follow if you have an emergency, that is, one of the “**contingencies**” or “**what ifs**” occurs. While a specific written contingency plan may not be required, it is a good idea to make a list of these questions and answer them on paper. This also may be helpful in informing your employees about their responsibilities in the event of an emergency.

If you have an emergency in your facility:

- In the event of a fire, call the fire department or attempt to extinguish it using the appropriate type of fire extinguisher.
- In the event of a spill, contain the flow of hazardous waste and as soon as possible, clean up the waste and any contaminated materials or soil.
- Emergency phone numbers and locations emergency equipment must be posted

near telephones and all employees must know proper handling and emergency procedures.

- Assign an employee to act as **emergency coordinator** and ensure that he/she will be available 24 hours in the event an emergency arises.

The Uniform Hazardous Waste Manifest

A hazardous waste manifest is a multicopy shipping document that you must fill out and use to accompany your hazardous waste shipments. The manifest form is designed so that shipments of hazardous waste can be tracked from their point of generation to their final destination - the so-called - cradle-to-grave – system.

The hazardous waste generator, the hauler, and the designated facility must each sign this document and keep a copy. The designated facility operator also must send a copy back to you, so that you can be sure that your shipment arrived. You must keep this copy, which will be signed by the hauler and designated facility, on file for three years.

If you do not receive a signed copy of the manifest from the designated hazardous waste management facility within 30 days, it is a good idea for you to find out why and, if necessary, let the State or EPA know. **“REMEMBER”** Just because you have shipped the hazardous waste off your site and it is no longer in your possession, **your liability has not ended.**

You are potentially liable under the Superfund Law for any mismanagement of your hazardous waste. The manifest will help you to track your waste during shipment and make sure it arrives at the proper destination. You can obtain blank copies of the manifest from several sources. To help determine which source to use, you may consider these guidelines.

- If the state to which you are shipping your waste has its own manifest, use that manifest form. Contact the hazardous waste management agency of that state, your hauler, or the designated facility you intend to use for manifest forms.
- If the state you are shipping your waste to does not have its own manifest, use the manifest from the state in which the waste was generated. Contact your hauler or your state hazardous waste agency for blank forms.
- If neither state requires a state-specific manifest, you may use the “general” Uniform Hazardous Waste Manifest - EPA Form 8700-22. Copies are available from some haulers and designated hazardous waste management facilities, or may be purchased from some commercial printers.

GOOD HOUSEKEEPING AND A SAFE ENVIRONMENT

Good hazardous waste management can be thought of simply as using “good housekeeping” practices such as: using and reusing materials as much as possible; recycling or reclaiming waste; treating waste to reduce its hazards; or reducing the amount of waste you generate.

To reduce the amount of waste you generate:

- Do not mix non-hazardous wastes with hazardous wastes.
- Avoid mixing several different hazardous wastes. Doing so may make recycling very difficult, if not impossible, or make disposal more expensive.
- Avoid spills or leaks of hazardous products. (The materials used to clean up such spills or leaks will become hazardous.)
- Avoid using more of a hazardous product than you need.
- Make sure the original containers of hazardous products are completely empty or at least try to use up the entire product.

Reducing your hazardous waste means saving money on raw materials and reducing the costs to your business for managing and disposing of your hazardous wastes.

In Conclusion

SIFCO Applied Surface Concepts has had over 40 years of experience plating with and safely handling our brush plating solutions. Our process has been specifically engineered to use the minimum quantities of materials to ensure worker safety and to ease the burden of waste disposal. Our long record of safety in our own plating shops demonstrates our success in these efforts.

The expected normal volume of waste generation depends on the part or parts processed and the amount of rinse water used. This amount will also vary in regards to operator’s experience and the processing methods. It is the generator responsibility to properly dispose of the hazardous waste. Therefore, disposal can occur only at properly permitted treatment, storage and disposal facilities in accordance with your Local, State, and Federal Regulations.

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Questions regarding the content of this guide, or any other environmental health or safety matter questions, can be directed to SIFCO Applied Surface Concepts' Environmental Health & Safety Manager at (216) 524-0099 or (800) 765-4131.

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