

# LOSS CONTROL

## FOR

# MANUFACTURING

### **SAFETY TIPS**

An ounce of prevention is worth a pound of cure, so too with insurance. It's better to prevent a loss from happening than to try and pick up the pieces afterwards (although we'll do all we can to help our clients who do have claims).

We present this advice in the form of safety tips to help you:

- prevent a loss from occurring
- be proactive and do something to protect the things you value
- deter crime from your business premises and avoid its emotional and financial cost

Remember insurance can only pay to replace items or repair damage. It cannot recreate stolen goods, especially those with sentimental value.

Here is a series of loss prevention tips:

### **ALARM SYSTEMS**

#### **Components:**

All alarm components including control panels and alarm devices such as door contacts and motion detectors should be listed by Underwriters Laboratories of Canada (U.L.C.).

#### **Installation:**

All system components should be installed by a U.L.C. listed contractor and to U.L.C. specifications.

#### **Monitoring Station:**

The alarm should be transmitted to a U.L.C. listed monitoring or central station. The alarm transmission lines should be able to detect any attempts at tampering.

## **LOSS CONTROL FOR MANUFACTURING**

This checklist is intended to help you identify potential losses in the day-to-day operation of your business. It describes good loss control practices that should be in place on process hazards common to many manufacturers. These suggestions are general in nature and are not intended to cover all potential problems. Your business may require other protection features not found here.

### **Products Liability**

Businesses that engage in manufacturing products are required to ensure their products are as safe as possible and any known or foreseeable hazards are identified and eliminated, or sufficient warnings are in place for the end-user. This would also encompass any possible or probable misuse of the product. This is of greater importance for those businesses whose products go to the United States.

"Manufacturing" could be construed to include any business engaged in assembly or alteration to an already manufactured product.

To ensure as far as practical that products manufactured meet the strictest possible standards for their respective industry, the following procedures should be in place:

- Staff should be qualified and adequately trained.
- Written product standards should be in place.
- Written quality control procedures should be established and documented.
- Quality control should encompass all aspects of the manufacturing process including:
  - Receipt and inspection of raw materials and/or component parts.
  - Inspection and testing at various states during manufacturing.
  - Final testing or inspection of finished products.
  - Ability to trace all products to date of manufacture by lot or serial number.
  - Review of all labels and warnings by legal personnel to ensure they meet currently accepted standards.
  - Review of all assumed contractual liabilities.
- Procedures in place to respond promptly to customer concerns and incidents that could lead to a claim.

### **Spray Painting**

Spray application of coatings is a process inherent in the manufacturing of a large percentage of goods. Fabricated products are coated for a variety of reasons such as protection, colour or lubrication. Flammable coating material is commonly used. This process is made more hazardous because these flammable or combustible materials are in an atomized form.

The following controls should be in place wherever spray painting or powder coating operations are conducted in spray booths or rooms:

- Hazard Identification – All hazardous materials should be clearly marked with specific indicators such as "Flammable Liquid" when they arrive.

For more information on hazardous materials, refer to <http://www.ccohs.ca/> or <http://ull.chemistry.uakron.edu/erd/>

- Control of vapours and over-spray –  
All spray and coating operations should be conducted in approved spray booths or rooms designed for the specific application. Spray booths and rooms should incorporate the following features:
- Mechanical ventilation should be provided for the capture of over-spray through approved filters.
- The spray equipment discharge devices, such as electrostatic spray guns, should be interconnected to the ventilation system. This means that the spray equipment cannot operate unless the ventilation system is working.
- Spray booths should be protected with automatic sprinklers or other pre engineered, point of use extinguishing system located in the booth and the exhaust duct.
- Filters used to capture over-spray should be cleaned frequently to allow for proper ventilation of the spray booth. Clogged filters will result in improper venting of flammable vapours that could be ignited by nearby sources of ignition. Used filters should be promptly removed from the building and disposed of in accordance with environmentally safe practices.
- A routine maintenance program should remove over-spray from the walls, floor and ceiling of the spray booth.
- All electrical in or around the spray booth or room should be in accordance with Section 18 "Hazardous Locations" of the Canadian Electrical code.
- The area where the spray painting is being conducted should also be a safe distance away (35ft / 10.7 m) from other operations with inherent sources of ignition such as welding, cutting, grinding etc.
- Smoking shall not be allowed in areas where spray painting is being conducted.

## **Fire Protection Equipment**

### **Portable Fire Extinguishers**

- The premises should be equipped with a standard supply of portable fire extinguishers. Small fires occur from time to time and can be effectively handled if adequate equipment and trained personnel are available. It is recommended that a program be established to check all fire extinguishers on a weekly basis to ensure they are charged and readily available.

### **Automatic Sprinkler Systems:**

- If premises are protected by an automatic sprinkler system, a qualified contractor should test the system annually. A copy of the sprinkler system test report should be kept on file and any deficiencies rectified immediately.
- Water pressures should be checked daily. If a drop of more than 5 PSI in the system or city pressure is noticed, a qualified contractor should be called to investigate.
- All sprinkler systems should be alarmed and monitored by a U.L.C. listed monitoring company.

### **Flammable and Combustible Liquids**

Flammable and combustible liquids are of great concern because of the need to be protected from ignition sources like sparks and cigarettes. Necessary precautions should include:

- All flammable liquids should be stored in approved containers with only a daily supply kept at the point of use.
- Containers for dispensing should be U.L.C. or U.L. approved.
- Proper electrical installations are required in the vicinity of flammable liquid storage rooms. As a general rule, any electrical wiring, lighting, plugs or equipment within the room or within a one-meter radius of a door opening must be explosion proof.
- Welding and cutting should not be done in the vicinity of flammable liquid storage or usage. Remember flammable vapours given off may travel a considerable distance to a source of ignition.
- Proper bonding and grounding of storage containers and dispensing equipment is vital to prevent static sparks from igniting flammable vapours.

### **Handling and Storage of Industrial (Compressed Gases)**

"Industrial gases" is a general term applied to a variety of compressed gases used in manufacturing. Necessary precautions related to the safe storage and handling of these gases should include:

- All compressed gas cylinders should be stored upright and chained in place to prevent being knocked over.
- Cylinders should be stored away from heavy traffic areas where they could be hit by lift trucks or other vehicles.
- All cylinders should have protective caps protecting the valve stem assemblies.
- Extra and empty propane cylinders for use on lift trucks should be stored outside the building in a locked cage.
- Cylinders in use in the plant should be secured in place at the point of operation.

### **Industrial Housekeeping**

A good housekeeping program should incorporate a preventative maintenance attitude to limit potential sources of ignition.

Poor housekeeping and maintenance can increase the potential for loss in several ways by:

- Providing places for fires to start and spread by providing a continuous path of combustible material.
- Increasing fire loads.
- Increasing potential for flash fires from accumulation of combustible dust and lint.
- Increasing chances of fire from overheating moving components such as motors.
- Excess friction can cause static discharges.
- Poorly enforced smoking policies can become a source of ignition.

The following should be incorporated into a good housekeeping program:

- Someone should have direct responsibility for housekeeping and maintenance. Making a general statement that "this is everyone's responsibility" will ensure no one takes accountability.
- A safety committee should be established and regular in-house inspections conducted.
- Work areas should be kept clean and free of combustible material and process waste. This is extremely important if the process involves the use of combustible or flammable materials or metals such as aluminum or titanium.
- All rags used to clean up hydraulic oil or other spills should be stored in U.L.C. listed metal containers equipped with a safe closing lid. Rags should be disposed of regularly and replaced as required.
- Accumulation of paper dust should be cleaned from machinery (such as printing presses) by vacuuming the equipment. Do not use compressed air discharge to blow dust away. This will put dust into the air and could result in a dust explosion.
- All processing machinery, material handling equipment, compressors, refrigeration equipment, etc. should be inventoried and placed on a preventative maintenance schedule.
- Designate specific areas for storage of all incoming and outgoing goods. All tools and equipment should be stored in designated storage sites when not in use.
- Make proper use of racks and shelving to keep things off the floor and work surfaces.
- Keep aisles clear and accessible.
- Provide adequate equipment for cleaning and maintenance such as brooms vacuums and waste receptacles.
- Provide adequate facilities for proper control of employee smoking and strictly enforce a "No Smoking" policy within the plant area.
- Provide proper industrial waste containers of necessary waste and capacity to handle routine disposal of waste. Containers should not be overfilled so lids cannot close.
- Do not allow accumulations of packaging materials, wooden pallets, etc. to be stored directly against the building.
- Make arrangements for removal of waste materials on a frequent basis to prevent any accumulations.

## **Cutting and Welding Operations**

The key to fire prevention when cutting and welding is isolation or protection of combustibles. Often combustibles are not obvious, but may be exposed to sparks that fall through cracks or other openings in floors and partitions. If those sparks are sufficient to retain heat for a time, they may ignite combustibles.

The essentials of combustible control in the cutting or welding work area are in the following:

- Move all combustibles a safe distance away – at least 35ft (10.7 m) horizontally and be sure there are no openings in the walls or floors within 35ft (10.7 m).
- If neither of the above steps is possible, protect the exposed combustibles with suitable fire-resistant guards and provide a trained firewatcher with extinguishing equipment readily available.
- The nature and thoroughness of the fire protection supervision in the work area and the quality of the welder's training in fire prevention are essential.
- Oxy-fuel gas cutting and welding equipment should be visually inspected and tested periodically for leaks. Check for cracked or worn hoses and damaged torches and valve assemblies.

Dangerous sparks – globules of molten, burning metal or hot slag are produced by both welding and cutting operations. Those from cutting, particularly oxy-fuel gas cutting, are generally more hazardous than those from welding because they are more numerous and travel greater distances. In a sense, they are jet-propelled by the oxygen or air streams used in the cutting processes. Oxy-fuel gas flames and electric arcs are inherent and obvious ignition sources, as are hot work pieces or sections cut from the base work piece. However, experience shows these to be less frequent ignition sources than sparks.