Welcome to the SAFE online refresher course

Dealership personnel employed in the areas of **Sales, Office and Parts** are required to take the following modules to satisfy the annual SAFE refresher requirements:

- ✓ Back Safety
- ✓ Fire Safety
- ✓ General Dealership Safety
- ✓ HAZCOM (Hazardous Communication)

This document contains the modules listed above. After reading through each of the modules in their entirety you will need to complete a short test which addresses the material covered in this manual.

Please note that the SAFE online refresher course is only available to those that have attended an instructor lead SAFE course at The Greater Cleveland Automobile Dealers' Association or at their dealership. Failure to adhere to these guidelines will render your refresher certification invalid.

Please contact Maria Bacik at 440-746-1500 or via email at mbacik@gcada.org with any questions.

How to Prevent Back Injuries

The best way to prevent back injuries is to develop habits that reduce the strain placed on the back. There are some basic things you can do to help.

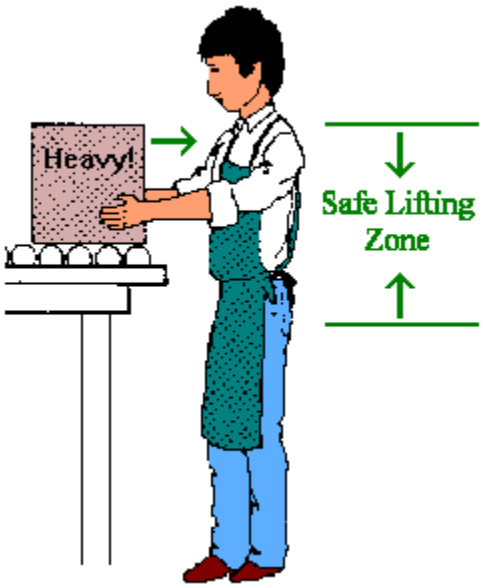
1. Avoid Lifting and Bending Whenever You Can

Anytime you can spare your back the stress and strain of lifting and bending, do so! If you don't use your back like a lever, you avoid putting it under so much potentially damaging force.

Place objects up off the floor. If you can set something down on a table or other elevated surface instead of on the floor, do it so you won't have to reach down to pick it up again.

Raise / lower shelves. The best zone for lifting is between your shoulders and your waist. Put heavier objects on shelves at waist level, lighter objects on lower or higher shelves.

Use carts and dolleys to move objects, instead of carrying them yourself.



Which is better for your back: Pushing a cart or Pulling a cart?

Use cranes, hoists, lift tables, and other lift-assist devices whenever you can.

2. Use Proper Lifting Procedures

You can't always avoid lifting, but there are ways to reduce the amount of pressure placed on the back when you do so. By bending the knees, you keep your spine in a better alignment, and you essentially take away the lever principle forces. Instead of using your back like a crane, you allow your legs to do the work.

Follow these steps when lifting:

1. Take a balanced stance with your feet about a shoulder-width apart. One foot can be behind the object and the other next to it.

2. Squat down to lift the object, but keep your heels off the floor. Get as close to the object as you can.

3. Use your palms (not just your fingers) to get a secure grip on the load. Make sure you'll be able to maintain a hold on the object without switching your grip later.

4. Lift gradually (without jerking) using your leg, abdominal and buttock muscles and keeping the load as close to you as possible. Keep your chin tucked in so as to keep a relatively straight back and neck line.

5. Once you're standing, change directions by pointing your feet in the direction you want to go and turning your whole body. Avoid twisting at your waist while carrying a load.

6. When you put a load down, use these same guidelines in reverse.

Also follow these lifting tips:

Reduce the amount of weight lifted. If you're moving a bunch of books, better to load several small boxes than one extremely heavy load.

Use handles and lifting straps.

Get help if the shape is too awkward or the object is too heavy for you to lift and move by yourself!

Body Management

It's important to know your body's limitations, and it's important to be aware of your body position at all times. Learn to recognize those situations where your back is most a risk: bending, lifting, reaching, twisting, etc. Then take measures to avoid an injury.

Stretch first - If you know that you're going to be doing work that might be hard on your back, take the time to stretch your muscles before starting, just like a professional athlete would do before a workout. This will help you avoid painful strains and sprains.

Slow down - If you're doing a lot of heavy, repetitive lifting, take it slowly if you can. Allow yourself more recovery time between lifts, as well. Don't overdo it.

Rest your back - Take frequent, short (micro) breaks. Stretch. If you've ever been working in an awkward position for a long time, then stood up and felt stiff and sore, you know you've been in that position too long, and your body is now protesting. Taking a one minute stretch break every now and then can help you avoid that.

Sleep on a firm mattress. - Also, the best sleeping position for many people is either on the back with the knees slightly elevated (by a pillow), or on the side with knees slightly bent.

Get in shape - Strengthen your stomach muscles, lose a little weight, increase your flexibility.

Exercises for Preventing Back Pain *(American Academy of Orthopedic Surgeons)*

NOTE!
It is recommended you check with your physician before starting any exercise program, particularly if you have experienced a back injury or suffer from back pain.

WHAT IS FIRE?

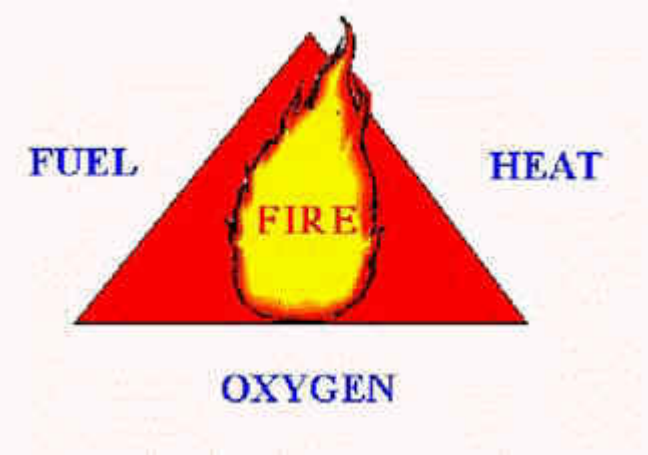
In order to have a **fire**, there must be three elements:

Fuel -- something which will burn

Heat -- enough to make the fuel burn

Oxygen -- air

Usually these three elements are expressed as a triangle, called the **Fire Triangle**.



FIRE TRIANGLE

All three elements must be present at the same time to have a fire. **Fire** will burn until one or more of the elements is removed, then will go out.

FIRE EXTINGUISHERS HAVE LIMITS

Portable extinguishers are not designed to fight large or spreading fires. Even against small fires, they are useful only under certain conditions.

- The operator must know how to use the extinguisher
- The extinguisher must be within easy reach, in working order, and fully charged
- The operator must have a clear escape route that will not be blocked by fire
- The extinguisher must match the type of fire being fought. (Extinguishers containing water are unsuitable for use on grease or electrical fires.)
- The extinguisher must be large enough to put out the fire. Many portable extinguishers discharge completely in as few as eight to ten seconds.

THE PROPER FIRE EXTINGUISHER

Select only fire extinguishers that have been tested by an independent laboratory and labeled for the type and size of fire they can extinguish. Use the labels below as a guide to purchase the kind of extinguisher that suits your needs.

Classes of Fires:

There are four classes of fires. All fire extinguishers are labeled, using standard symbols, for the classes of fires on which they can be used. A red slash through any of the symbols tells you the extinguisher cannot be used on that class of fire. A missing symbol tells you only that the extinguisher has not been tested for a given class of fire, but may be used if an extinguisher labeled for that class of fire is not available.

Class A: Ordinary combustibles such as wood, cloth, and paper

Class B: Flammable liquids such as gasoline, oil, and oil-based paint

Class C: Energized electrical equiptment, including wiring, fuse boxes, circuit breakers, machinery and appliances

Class D: Combustible metals such as magnesium or sodium

Remember that the extinguisher must be appropriate for the type of fire being fought. Multipurpose fire extinguishers, labeled ABC, may be used on all three classes of fire. If you use the wrong type of extinguisher, you can endanger yourself and make the fire worse. It is also very dangerous to use water or an extinguisher labeled only for Class A fires on a cooking-grease or electrical fire.

Fire Extinguisher Sizes:

Portable extinguishers are also rated for the size of fire they can handle. This rating is expressed as a number from 1 to 40 for Class A fires and from 1 to 640 for Class B fires. This rating will appear on the label --- 2A:10B:C, for example. The larger the numbers, the larger the fire of a specific class on which the extinguisher can be used (but higher-rated models are often heavier - make sure you can hold and operate an extinguisher before you buy it). No number accompanies an extinguisher's Class C rating. The C on the label indicates only that the extinguisher is safe to use on electrical fires.

Extinguishers for Class D fires must match the type of metal that is burning. These extinguishers do not use numerical ratings. Extinguishers for Class D fires are labeled with a list detailing the metals that match the unit's extinguishing agent.

Types of Fire Extinguishers

Depending on their intended use, portable extinguishers store specific "extinguishing agents," which are expelled onto the fire.

- **Pressurized water models** are appropriate for use on Class A fires only. These must never be used on electrical or flammable-liquid fires.
- **Carbon dioxide** extinguishers contain pressurized liquid carbon dioxide, which turns to a gas when expelled. These models are rated for use on Class B and C fires, but can be used on a Class A fire. Carbon dioxide does not leave a residue.
- **Dry-chemical extinguishers** are either stored-pressure models or cartridge-operated models. The stored-pressure models have a lever above the handle for operation. The cartridge-operated models require two steps: Depress the cartridge lever, and then squeeze the nozzle at the end of the hose. The dry chemicals leave a residue that must be cleaned up after use.

REMEMBER THE PASS-WORD

Keep your back to an unobstructed exit and stand six to eight feet away from the fire.

Follow the four-step procedure:

Pull, Aim, Squeeze, and Sweep

PULL the pin: This unlocks the operating lever and allows you to discharge the extinguisher. Some extinguishers may have other lever-release mechanisms.

AIM low: Point the extinguisher nozzle (or hose) at the base of the fire.

SQUEEZE the lever above the handle: This discharges the extinguishing agent. Releasing the lever will stop the discharge. (Some extinguishers have a button instead of a lever.)

SWEEP from side to side: Moving carefully toward the fire, keep the extinguisher aimed at the base of the fire and sweep back and forth until the flames appear to be out. Watch the fire area. If the fire re-ignites, repeat the process.

SHOULD YOU FIGHT THE FIRE?

BEFORE you consider fighting a fire . . . .

- Call the Fire Department (**Dial 911**).
- Make sure the building is being evacuated.
- Determine whether the fire is small and is not spreading.
- Confirm you have a safe path to an exit not threatened by the fire.
- Know how to use a fire extinguisher.

NEVER fight a fire if *even one* of the following is true:

- The fire is spreading beyond the immediate area in which it started or is already a large fire.
- The fire could block your escape route.
- You are unsure of the proper operation of the extinguisher.
- You doubt that the extinguisher you are holding is designed for the type of fire at hand or is large enough to fight the fire.

General Safety

Everyone who works in a dealership play a role in preventing injuries. It is vital to the dealership and the business to give great customer service, repair a customer's car correctly and work safely. Injuries do not happen by fate or chance but do have definite causes, and these cause have to identified and fixed. All employees in the organization must think and react to safety issues, including technicians, sales persons, office workers and detail persons. Injuries can happen to anyone in the dealership and when you see something that could lead to a problem it should be corrected as soon as possible. Safety policies and rules have been established in all dealerships and below are some of these policies. Please check with your safe supervisor for the your exact policies for your dealership.

- Wear the required personal protective equipment at all times.
- Housekeeping practices are important for safety and overall health in a dealership. Maintaining a clean work area and cleaning up spills and debris quickly will help in the overall safety of the dealership as well as the working conditions.
- Maintain guards on machines at all times
- Never work on equipment or machinery that could move as a result of energy that was not lock out.
- When lifting any object, never bend at the waist. Keep the back flat, stand close to the load, bend at the knees and lift the load close to the body. Move your feet when shifting the load to move it, do not twist or rotate the body.
- Horseplay is forbidden. Do not disturb or interfere employees when they are performing their jobs.
- Observe all signs, warning tags and labels.
- Do not smoke near flammables or any combustible materials. Many dealerships have specific smoking locations and smoking is allowed in those locations only.
- Know where fire extinguishers are located.
- Secure compressed gas cylinders in the upright position with the caps securely in place.
- Safely barricade and identify floor openings or other obstructions, which could cause trips and falls.
- Wear seat belts when operating any motorized vehicle

- Only people who have been trained to operate equipment such as forklifts can operate such equipment.
- Dispose of hazardous materials properly
- Use safety cans for flammables such as gasoline and other liquids
- Correct unsafe working conditions wherever possible and report these to your safe supervisor.
- Ensure that a hoist is safe and secure before working with hoist.
- Never use an air hose to blow dust off of your clothing.
- Use an approved wet wash procedure or other method to remove brake dust from brake drums
- Clamp or secure materials when drilling, grinding or operating any machine that rotates.
- Stack and store product neatly and safely. Keep parts away from aisles away from your feet when working.
- Report all injuries to your management and your safe supervisor.
- Do not allow anyone to ride lifts or be in the vehicle when raising or lowering lift.
- Never overload your lift.
- Make sure lift locking devices are locked on lifts before starting work on car.
- All employees who work with chemicals should be trained.
- Approved ladders or stepladders should be used when you are getting items in high places.
- Electrical cords should be used for temporary work only, machines and other permanent items cannot be powered by electrical cords
- All plugs should be a three prong grounded plug when used in the dealership.
-

HAZCOM

Definitions

- Highly toxic materials
- LD50
- Sensitizes
- Anesthetics
- Nephrotoxic agents
- Vapor density
- -Toxic materials
- Irritant
- Asphyxiant
- Hepatotoxic agents
- Blood damaging agents
- Flammable limits

- *Highly toxic materials have LD50 of less than 200 parts per million. Examples of some these chemicals are Nitrogen dioxide, nicotine and Arsine.*
- *Toxic materials have LD50 that are greater than 200 parts per million and some examples of these are chlorine phosgene and phenol.*
- *LD50 means 50% of the test subjects die at this level. This is usually done with white rats and could be other laboratory animals and are then exposed to the test chemical. At the point that half of the animals die this is what is considered the LD50. This number is on material safety data sheets and gives an idea of how toxic the chemical is.*
- *Irritant is any chemical that can cause inflammation of the mucous membrane of the respiratory tract.*
- *Sensitizes is any chemical causes an allergic reaction in normal tissue after repeated exposure.*
- *Asphyxiant is any inert element that in sufficient quantity that will exclude oxygen from the body*
- *Anesthetics are any chemicals, which acts to depress the central nervous system.*
- *Hepatotoxic agents are any chemical that damages the normal functioning of the liver.*
- *Nephrotoxic agents are any chemical that damages the nervous system.*
- *Blood damaging agents are any chemical that breaks down the red blood cells or chemically affect the hemoglobin in the blood.*
- *Vapor density is defined as the relative weight of a gas or vapor compared to air, which has an arbitrary value of one. If a gas has a vapor density of less than one*

it will generally rise in air. If the vapor density is greater than one the gas will generally sink in air.

- *The Flammable Limits refer to the conditions under which a mixture of a flammable material and air may catch fire or explode. If the percentage of flammable material in the air is between the minimum and maximum limits, the presence of a flame or a source of ignition is likely to lead to rapid combustion or explosion. Flammable limits are also sometimes referred to as explosion limits.*

Flammable (Explosive) Limits. For gases or vapors, which form flammable mixtures with air or oxygen, there is a minimum concentration of vapor in air or oxygen below which propagation of flame does not occur on contact with a source of ignition. There is also a maximum proportion of vapor or gas in air above which propagation of flame does not occur. These boundary-line mixtures of vapor or gas with air, which if ignited will just propagate flame, are known as the "lower and upper flammable limits" (LFL and UFL) or the "lower and upper explosive limits" (LEL and UEL), and are usually expressed in terms of percentage by volume of gas or vapor in air. LEL and LFL are different terms for the same concept and can be used interchangeably. In popular terms, a mixture below the lower flammable limit is too "lean" to burn or explode and a mixture above the upper flammable limit too "rich" to burn or explode.

Flammable (Explosive) Range. The range of flammable vapor or gas-air mixture between the upper and lower flammable limits is known as the "flammable range", also often referred to as the "explosive range". For example, the lower limit of flammability of acrylonitrile at ordinary ambient temperatures is approximately 3 percent vapor in air by volume, while the upper limit of flammability is about 17 percent. All concentrations by volume of acrylonitrile vapor in air falling between 3 percent and 17 percent are in the flammable or explosive range.

Flashpoint is the minimum temperature at which a liquid gives off a sufficient vapor to reach 100% LEL (sufficient vapor to form an ignitable mixture with the air near the surface of the liquid).

- *Corrosive Materials are materials that have a ph of over 12.5 or less than 2.0. These materials will burn the skin and also corrode metals. The ph of a material that is neutral is 7.0 and anything less the 7.0 is and acid and anything over a 7.0 is a base, caustic, or alkaline.*

- *PEL stands for permissible exposure limit and is the OSHA regulation for a how much a person can be exposed to a material. The PEL is an 8 hour time frame*

and will stated in Parts per million (PPM) or milligrams per cubic meter (mg/m3).

- *TWA stands for time weighted average and the PEL is a time weighted average and example would be 50 PPM for and 8-hour period of time.*
- *STEL stands for short-term exposure limit and is a 15-minute period of time with no more than 4 exposures in an 8 period of time.*
- *Ceiling stands ceiling limit and is the highest amount that a person can be exposed to at any time.*
- *IDLH stands for immediately dangerous to your life and health. No one should ever be exposed to this amount without proper personal protective equipment.*

Threshold Limit Value Time-Weighted Average (TLV-TWA) is the time-weighted average concentration of a substance for a normal 8-hour work day and a 40-hour work week, to which nearly all workers may be repeatedly exposed, day after day.

- **Carbon monoxide**

Concentration of CO in air	Inhalation time and toxic developed
50 parts per million (ppm)	Safety level as specified by the Health and Safety Executive
200 PPM	Slight headache within 2-3 hours
400 PPM	Frontal headache within 1-2 hours, becoming widespread in 3 hours
800 PPM	Dizziness, nausea, convulsions within 45 minutes, insensible in 2 hours

Carbon Monoxide poisons by entering the lungs via the normal breathing mechanism and displacing oxygen from the bloodstream. Interruption of the normal supply of oxygen puts at risk the functions of the heart, brain and other vital functions of the body.

The above information is for a healthy adult. Persons suffering from heart or respiratory health problems, infants and small children, unborn children, expectant mothers and pets can be affected by CO poisoning more quickly than others in the household and may be the first to show symptoms

What Are the Health Effects?

Carbon monoxide interferes with the distribution of oxygen in the blood to the rest of the body. Depending on the amount inhaled, this gas can impede coordination, worsen

cardiovascular conditions, and produce fatigue, headache, weakness, confusion, disorientation, nausea, and dizziness. Very high levels can cause death.

The symptoms are sometimes confused with the flu or food poisoning. Fetuses, infants, elderly, and people with heart and respiratory illnesses are particularly at high risk for the adverse health effects of carbon monoxide.

An estimated 1,000 people die each year as a result of carbon monoxide poisoning and thousands of others end up in hospital emergency rooms.

Mechanics are exposed to a wide variety of toxic chemicals. Exposure to high levels of those chemicals over a period of time can cause damage to health. Cigarette smoking greatly increases the hazard.

Some of the elements contained in cigarette smoke and the various chemicals found in auto repair work may attack different parts of the respiratory system at the same time.

Mechanics are exposed to a wide variety of toxic chemicals.

Carbon monoxide from car exhausts and cigarette smoking is an odorless, colorless gas that reduces the oxygen-carrying capacity of the blood. Its effects are first felt in those tissues most sensitive to a lack of oxygen, such as the brain and the heart.

Early symptoms of carbon monoxide poisoning include headache, followed by weakness, dizziness, dim vision, nausea, and vomiting. At high concentrations, coma and death may result.

Too much carbon monoxide in your blood will kill you. Most of us know to try to avoid this. Less well known is the fact that low-level exposure to this gas also endangers your health.

One of the imperfections of our human bodies is that, given a choice between carbon monoxide and oxygen, the protein hemoglobin in our blood will always latch on to carbon monoxide and ignore the life-giving oxygen. Because of this natural chemical affinity, our bodies - in effect - replace oxygen with carbon monoxide in our bloodstream, causing greater or lesser levels of cell suffocation depending on the intensity and duration of exposure.

- **Acetylene**

Pure acetylene is a colorless gas with a pleasant odor; as prepared from calcium carbide it usually contains traces of phosphate that cause unpleasant garlic like odor. Acetylene can be decomposed to its elements with the liberation of heat. The decomposition may or

may not give rise to explosions, depending on conditions. Pure acetylene under pressure in excess of about 15 pounds per square inch or in liquid or solid form explodes with extreme violence.

Mixtures of air and acetylene are explosive over a wide range, from about 2.5 percent air in acetylene to about 99 percent acetylene in air the mixture will burn. When burned with the correct amount of air, acetylene gives a pure, white light, and for this reason it was at one time used for illumination in locations where electric power was not available, e.g., buoys, miners' lamps, and road signals.
The combustion of acetylene produces a large amount of heat, and, in a properly designed torch, the oxyacetylene flame attains the highest flame temperature (about 6,000° F, or 3,300° C) of any known mixture of combustible gases.

❖ Compressed Gases

Compressed gas cylinders are used in many workplaces to store gases that vary from extremely flammable (acetylene) to extremely inert (helium). Many of these cylinders store gases as extremely high pressures that can turn a damaged cylinder in a torpedo capable of going through multiple concrete block walls. Other cylinders store the contents as a liquid (example: acetylene) and have special orientation requirements. If handled properly compressed gas cylinders are safe. If handled improperly, the same cylinders can present a severe hazard to you and your employees.

Compressed gas cylinders shall be kept away from excessive heat, shall not be stored where they might be damaged or knocked over by passing or falling objects, and shall be stored at least 20 feet (6 meters) away from highly combustible materials.

Inside of buildings, cylinders shall be stored in a well-protected, well-ventilated, dry location, at least 20 (6.1 m) feet from highly combustible materials such as oil or excelsior. Cylinders should be stored in definitely assigned places away from elevators, stairs, or gangways. Assigned storage spaces shall be located where cylinders will not be knocked over or damaged by passing or falling objects, or
subject to tampering by unauthorized persons. Cylinders shall not be kept in unventilated enclosures such as lockers and cupboards.

Most modern cylinders either come with a valve cap or built in valve protection. An example of
valve protection is the collar on propane tanks. Valve caps must be on all cylinders at all times
except when the cylinder is in-use. If the cylinder was not designed to have a valve cap, the cylinder
is not required to be capped. The actual OSHA standard, 1910.253(b)(2)(iv) says,

Valve protection caps, where cylinder is designed to accept a cap, shall always be in place, hand-tight, except when cylinders are in use or connected for use.

❖ Oxygen

Composition of Oxygen.

Oxygen includes 21% of the atmosphere at all altitudes. The remaining atmosphere consists of 78% nitrogen and 1% traces of other gases. Oxygen under normal conditions is an odorless, colorless, tasteless, non-combustible gas. It is the most important single element on earth.

At each breath we fill our lungs with air. Millions of tiny air sacs (known as "alveoli") in our lungs inflate like tiny balloons. In the minutely thin walls enclosing each sac are microscopic capillaries though which blood is constantly transported, from the lungs to every cell in the body. The oxygen extracted from the air in the lungs is carried by the blood to every part of the body. Because the body has no way to store oxygen over a period of a long time, it leads a breath-to-breath existence.

The human body must have oxygen to convert fuel (the carbohydrates, fats, and proteins in our diet) into heat, energy, and life. The conversion of body fuels into life is similar to the process of combustion; fuel and oxygen is consumed, while heat and energy is generated. This process is known as "metabolism".

There are four kinds of oxygen that are merchandised or sold to users; Aviation, Medical, Welding and Research. There is a ongoing controversy if there is any difference between the different types. Oxygen gas is produced from the boiling off of liquid oxygen. It would appear that the oxygen is therefor the same. Where we obtain oxygen, all the different types of oxygen are supplied from the same manifold system. Then someone says that medical oxygen has more moisture in it. That is partly true. The oxygen going to a hospital bed is plain oxygen that comes from liquid oxygen. At the bed location, there is a unit on the wall that adds moisture. At this moment we now have medical oxygen. If the oxygen is in a pressure vessel or in a manifold system (like inside a hospital) then it is regular oxygen. The cost of medical or welding oxygen is normally much less than the oxygen you get at an airport.

Also of interest, we have been told by the suppliers of welding oxygen, the purity level required for welding and cutting purposes is more critical than for breathing.

Although oxygen is non flammable, materials which burn in air will burn much more vigorously, and at a higher temperature, in oxygen. If ignited some combustibles such as oil, burn in oxygen with explosive violence. Some other materials which do not burn in air will burn vigorously in oxygen-enriched atmospheres.

A hazardous condition does exist if high pressure oxygen equipment becomes contaminated with hydrocarbons such as oil, grease, or other combustible materials which may include oil from the operator's hands or contaminated tools.

Oxygen under pressure presents a hazard in the form of stored energy.

Rapid release of high pressure oxygen through orifices, needle valves etc. in the presence of foreign particles can cause friction or impact resulting in temperatures which may be sufficient to ignite combustible materials and rapidly oxidize metals.

A cylinder will heat as it is filled from a high pressure source, due to the heat of compression generated as gas is forced into the cylinder. The more rapidly the cylinder is filled, the higher temperature rise in the cylinder. Excessive temperature may result in ignition of any combustible materials that are present.

Storing.

Compressed gas containers should not be subjected to atmospheric temperatures above 130 degrees F. A flame shall never be permitted to come in contact with any part of a compressed gas container. Containers shall not be stored near readily ignitable substances such as gasoline or waste papers, or near combustibles including oil. Containers shall not be exposed to continuous dampness nor be stored in the sun.

Putting in Service.

Container valve should be opened slowly for safety. Valve outlets should be pointed away from yourself and other persons. Valve wheels or levers should not be hammered in attempting to open or close the valve. For valves that are hard to open, or frozen because of corrosion, the supplier should be contacted for instructions. Before a regulator is removed from a container, the container valve should be closed and the regulator drained of gas pressure. Oxygen containers, valves, regulators, hose and other oxygen apparatus should be kept free from oil or grease and shall not be handled with oily hands, oily gloves or with greasy equipment.

Labeling

The information on all labels should correspond to the information on the appropriate Material Safety Data Sheet. All containers must be labeled. Also, piping that carries hazardous chemicals must be labeled (example — hot water, compressed gases, high pressure water, or high pressure air). Transfer containers are temporary containers that are used by <u>one person for one shift only</u>. They are not required to be labeled. According to the U.S. Department of Labor General Industry Digest, 1994 (Revised):

The employer shall ensure that each container of hazardous chemicals in the workplace is labeled, tagged, or marked with the identity of the hazardous chemical(s) contained therein and must show hazard warnings appropriate for employee protection.

Material Safety Data Sheets

As an employer you should have a Material Safety Data Sheet (MSDS) for every chemical that your employees use or are potentially exposed to. ***The actual OSHA standard, 1910.1200(g)(8) says,***

The employer shall maintain in the workplace copies of the required material safety data sheets for each hazardous chemical, and shall ensure that they are readily accessible during each work shift to employees when they are in their work area(s). (Electronic access, microfiche, and other alternatives to maintaining paper copies of the material safety data sheets are permitted as long as no barriers to immediate employee access in each workplace are created by such options.)

How to Read a Material Safety Data Sheet (MSDS)

At first glance, most material safety data sheets are confusing. However, by knowing what's in each section you can find the information that you are looking for quickly. Some sections such as Hazardous Ingredients, Transportation Information and Regulatory Information will be used mainly by the Safety Director.

OSHA requires all employees to be familiar with the hazards and precautions of the chemicals that they are working with. As an employee, it is your responsibility to remain familiar with the hazards and precautions of the chemicals that you are working with. Monthly safety meetings will help you to review and reinforce this information. You should not use a chemical that you don't have an MSDS for. All chemicals in use should be on the Hazardous Chemical inventory for your area.

Each Material Safety Data Sheet is broken up into approximately eight sections. Those sections include follows:

PRODUCT IDENTIFICATION — Gives the name of the chemical which is the same as the name on the corresponding label.

HAZARDOUS INGREDIENTS — Lists names of chemicals that make up this particular hazardous material.

PHYSICAL CHARACTERISTICS — Lists information such as odor and appearance.

FIRE AND EXPLOSION HAZARDS — Gives the flash point (which determines if it is a flammable, combustible, or neither) and fire fighting procedures.

REACTIVITY — Lists types of chemicals that shouldn't be stored with this particular chemical.

HEALTH HAZARDS — Look in this section for symptoms of overexposure and first aid procedures.

PRECAUTIONS FOR SAFE HANDLING AND USE — This section lists the PPE that should be used when handling or using this chemical.

SPILL OR LEAK PROCEDURES — What should be done to control a spill or leak.

SPECIAL PRECAUTIONS — Special handling or use instructions are documented in this section.

TRANSPORTATION DATA — Used for DOT classifications.

REGULATORY INFORMATION — Is this chemical covered by the SARA Title III or RCRA Hazardous Waste Acts.

NFPA Diamond 704 system

NFPA Hazard Identification System

Health Hazard

Type of Possible Injury.

(Blue)

A discussion of health hazards and the terminology used to describe them is given in Appendix A of the OSHA Hazard Communication Standard (29 CFR 1910.1200 App A).

0	Material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible material.	Example: peanut oil
1	Material that on exposure would cause irritation but only minor residual injury.	Example: turpentine
2	Material that on intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury.	Example: ammonia gas

3	Material that on short exposure could cause serious temporary or residual injury.	Example: chlorine gas
4	Material that on very short exposure could cause death or major residual injury.	Example: hydrogen cyanide

NFPA Hazard Identification System

Flammability

Susceptibility of Material to Burning.

(Red)

A note about the word inflammable:
Inflammable means the material **will** burn. Think of "inflammation" -- if you have an inflamed wound, it is red and hot to the touch. As recently as about 15 years ago, trucks and containers were marked "inflammable" if they contained material that could burn (material that won't burn is called non-inflammable). The problem was that many people assumed inflammable meant that a material would *not* burn -- a potentially deadly mistake. Today, the word "flammable" has replaced "inflammable" almost entirely, but don't be confused if you encounter the older term.

0	Material will not burn.	Example: water
1	Material must be pre-heated before ignition can occur.	Example: corn oil
2	Material must be moderately heated or exposed to relatively high ambient temperature before ignition can occur.	Example: diesel fuel oil
3	Liquids and solids that can be ignited under almost all ambient temperature conditions.	Example: gasoline
4	Materials that will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature, or that are readily dispersed in air and that will burn readily.	Example: propane gas

NFPA Hazard Identification System

Reactivity

Susceptibility of Material to Burning.

(Yellow)

0	Material that in itself is normally stable, even under fire exposure conditions, and is not reactive with water.	Example: liquid nitrogen
1	Material that in itself is normally stable, but which can become unstable at elevated temperatures and pressures.	Example: phosphorus (red or white)
2	Material that readily undergoes violent chemical change at elevated temperatures and pressures or which reacts violently with water or which may form explosive mixtures with water.	Example: calcium metal
3	Material that in itself is capable of detonation or explosive decomposition or reaction but requires a strong initiating source or which must be heated under confinement before initiation or which reacts explosively with water.	Example: fluorine gas
4	Material that in itself is readily capable of detonation or of explosive decomposition or reaction at normal temperatures and pressures.	Example: trinitrotoluene (TNT)

Symbols specified in National Fire Codes, section 704		
W	Material shows unusual reactivity with water (i.e. don't put water on it).	Example: magnesium metal
OX	Material possesses oxidizing properties.	Example: ammonium nitrate (fertilizer used in Oklahoma City bomb)
Other symbols commonly used		
ACID	Material is an acid.	
ALK	Material is a base (alkaline).	
COR	Material is corrosive.	
☢	Material is radioactive.	