

TRANSCRIPT OF THE CURRENT CEMA SAFETY VIDEO FOR SCREW CONVEYORS, DRAG CONVEYORS, AND  
BUCKET ELEVATORS

By Phil Hannigan, CEMA Executive Secretary – July 2, 2013

This program was prepared by the Conveyor Equipment Manufacturers Association, or CEMA, to promote safety and assist in reducing accidents. Founded in 1934 CEMA has approximately 100 members and represents a major cross section of the United States Conveyor Manufacturing Industry. Throughout its history it has developed, enhanced, and promoted standards for the conveyor industry.

Hello, I'm Michael Brown. The following safety practices are the recommendations of safety directors, plant managers, and others directly concerned with the safe operation of screw conveyors, drag conveyors, and bucket elevators.

CEMA Members have been involved in the development of safety standards which are currently published by the American National Standards Institute, or ANSI, the Occupational Safety and Health Act, or OSHA, and the American Society of Mechanical Engineers, or ASME.

Additionally, CEMA, through its members has implemented a safety label program to meet the needs and requirements of its diverse membership and their customers. The Safety Label program revolves around three simple signal words. These words designate the degree or level of hazard seriousness. The signal words for product safety signs are Danger, Warning, and Caution.

Danger indicates an imminently hazardous situation which, if not avoided, would WILL result in a death or serious injury. This signal word is to be limited to the most extreme situations.

Warning indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

Caution indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

CEMA has developed a Safety Label Brochure which illustrates a wide variety of labels and placement of those labels on various types of conveyors and bucket elevators.

Safety is a prime consideration in the manufacturing, installation, use, and maintenance of conveyors and elevators. There is no question that safety labels can increase awareness of the hazards involved.

The Guidelines for the selection and application of safety labels for use on conveyors and related material handling equipment should be part of the conveyor users comprehensive safety program. The users of conveyors should inspect and review safety labels to insure their integrity and maximize their effectiveness in injury prevention.

The installation of conveyors should be supervised by qualified personnel. The operation and maintenance of conveyors should also be performed and supervised by trained personnel.

This program is designed to promote safety, reduce accidents, and to specifically help safety directors, plant managers, and others directly concerned with the safe operation of screw conveyors, bucket elevators, and drag conveyors. Screw Conveyors, Bucket Elevators, and Drag Conveyors are used in a wide range of industrial applications and can be combined to make a total transportation system. These conveyors are manufactured in many sizes and can handle as little as a few pounds of bulk material an hour up to one hundred tons per hour. Some of the most common materials moved by conveyors, grains, sludge, ice, chemicals, and a multitude of other bulk materials. Screw Conveyors, Bucket Elevators, and Drag Conveyors remain an indispensable part of the material handling systems or process industries throughout the world.

Unfortunately, injuries may occur in conveyor related accidents and the real tragedy is that it need not happen.

Accidents involving Screw Conveyors, Drag Conveyors and Bucket Elevators happen because of human error where people are failing to follow the basic rules of safe operation. In this safety presentation, we'll show you the four basic rules on how to reduce or eliminate accidents. Training employees to know and follow the four basic rules will reduce accidents and needless injuries. We'll also show you some secondary devices and possible pit falls, which, when relied upon, can contribute to an accident.

The purpose of the screw conveyor, drag conveyor, and bucket elevator is to move material. As the screw turns, the material moves through the trough. The drag conveyor pulls the material through the trough and the bucket elevator lifts material by buckets through the elevator housing.

It should be obvious that anyone getting into an operating screw, drag conveyor, or bucket elevator may suffer serious injury or death. The way to prevent accidents and needless injuries is to follow these four basic safety rules.

First, covers, grates, and guards must be securely fastened before operating the conveyors. If the conveyor must have an open housing for its use, the entire conveyor must be guarded with a railing or fence or by a similar method.

Second, never step or walk on a screw conveyor, drag conveyor cover, grate, or guard.

Third, lock out power to the equipment before removing covers, grates and guards. Also, secure chain and belts on bucket elevators and chain on inclined drag conveyors that otherwise could move without power.

Four. Do not re-design or modify equipment without first consulting with the manufacturer of the equipment.

When we say lock out power we mean make provisions in your plant to follow a sound and safe lockout procedure. One example is, shut down the conveyor by following the normal method for shutdown, turn off the energy at the main power source, turn the starter switch back to on to confirm that the proper power source has been deactivated, attempt to restart the conveyor to guarantee that the power is shut off then return the switch to the off position. Using your own lock, lock out all energy sources involved. With your lock in place, check the disconnect to make sure power cannot be restored. Make absolutely certain that the power cannot be supplied. Everyone who is authorized to service the conveyor must put his own lock on the switch to lock it in the off position. Each person has the only key to his or her lock. No one can turn the power on until everyone has completed the work and removed the locks.

A major company uses hundreds of screw conveyors. They are used for unloading under rail cars or loading into bins, or transporting materials in process and to transport finished materials into trucks or rail cars. And with all those conveyors in use, they have not had a lost time accident in a conveyor or elevator for the last ten years. One of the primary reasons is, they make safety a condition of employment.

No one works on a conveyor or elevator until the power is disconnected and locked out with a personal lock and key for each person working on the conveyor or elevator. No one removes a cover unless power to the conveyors is locked out. This requires a commitment at all levels from top management to the operator.

At a major feed processing plant screw conveyors are used to transport eyes for packaging, to prepare feed by mixing and blending, and for material transport in the firm's processing plants. Management takes special care to look for any conveyor or elevator covers that are missing or maintenance employees working on conveyors or elevators without the power locked out or other guards not in place. Every employee is asked to report any unsafe condition like covers or grates that are missing, guards which are missing, and failures to lock out power.

These are examples of the four basic rules. Some plants, however, use secondary devices which are possible pit falls like interlock switches on covers. A small limit switch under the cover is in place. It breaks the circuit to the conveyor drive stopping the motor. Or emergency trip cords, aligned covering the full length of the conveyor. If there should be an emergency, you can pull the line and stop the conveyor. Or warning sirens and lights at start up to warn anyone around that the conveyor is about to be started and to watch out. And there are lots of others.

All of these devices and others have a place in many industrial operations but, if they are used as the primary safety means in conveyors or elevators, they can fail and cause an accident. They are possible pit falls which you should never substitute for the four basic safety rules. Each of these devices can be unreliable and not fail safe. With the interlock switches on covers, employees might assume they can remove the cover without locking out the power. But, if the switch fails to operate properly, and someone pushes the start button, the conveyor could start and a serious accident could result. Don't rely on the switch that can fail, or lose adjustment, or can be bypassed. A proper lockout procedure will

prevent accidents. Warning sirens or lights can be useful to warn employees when start up is to occur, but they are possible pit falls if they are relied on as the primary safety device when operating or maintaining the conveyor without covers, grates, or guards.

If you are not fast enough, or become confused, or don't react immediately, or if the warning system fails, an injury can occur. Any secondary device used with the screw, drag conveyor, or bucket elevator can be a possible pitfall and may result in employees breaking the basic safety rules. Following these basic safety rules can prevent accidents. With screw conveyors, drag conveyors, and bucket elevators there is no substitute for a safety commitment by management as well as all employees and strict adherence to the four basic safety rules.

First covers, grates, and guards must be securely fastened before operating the conveyor.

Second, never step on or walk on a conveyor cover, grate, or guard.

Third, lockout power to the conveyor before removing covers, grates, or guards.

And fourth, do not re-design or modify equipment without first obtaining approval from the conveyor manufacturer.

Following these four basic safety rules, with a total commitment to safety is a proven way to reduce accidents involving screw conveyors, drag conveyors, and bucket elevators. The CEMA Safety Video, the Safety Label Brochure, and all labels are readily available from the Conveyor Equipment Manufacturers Association.

This is a safety program for the prevention of accidents with screw conveyors, drag conveyors, and bucket elevators. Management many wish to include additional training on their company's lockout - tag out program and any specific safety information regarding their own operations. Also, please feel free to consult your CEMA Screw Conveyor Manufacturer for assistance in procuring Labels, Safety Videos, the Safety Label Brochure, or any specific needs.

Thanks for watching and remember, safety is everyone's responsibility.