B.F.Goodrich Chemical Company

Monthly Injury Summary
April 1958

In April we had no disabling injuries. We now have a total of two disabling injuries for the year. The frequency rate now stands at 1.05.

While we did not have a disabling injury this month, there were several "near misses" that should have experience value for our plants.

At Avon Lake General Chemical a man was overcome by vinyl chloride fumes while removing a "hard" charge from a poly. In this instance the cleaning operation was not a normal one in that the charge had become solid in the poly. To remove the hard charge it is necessary for a person inside the poly to break up the polymer in pieces small enough to pass out the manhole of the poly. Since it is known that vinyl chloride is trapped in pockets in the hard polymer it has been common practice to have the evacuation hose extending into the poly manhole during the operation to remove the fumes as it is released. As the chunks of hard material are handed out to the person outside the poly it is often necessary to remove the evacuation hose to allow the large pieces to pass through the opening. Evidently the evacuation hose had remained out of the poly long enough to allow the vinyl chloride content to build up to where the man inside was overcome. The man outside noticing his condition, sounded the alarm and the rescue was made in about one minute.

The man was not completely unconscious as he was able to talk during the operation, but later did not remember doing this. He was given oxygen at the dispensary and was examined by the doctor. Fortunately the man was found to have suffered no lasting, ill effects from the exposure. The report states that to prevent a recurrence in the future in this type operation the evacuation hose will be placed into the poly through the vent opening in the poly, where the hose can remain during the entire cleaning operation.

Another incident at Avon General which might have been serious was an explosion in the Carbopol dryer.

The drying cycle of the charge had been completed and the operator positioned the dryer to remove the manhead bolts. After doing this he then repositioned the dryer in preparation for emplying the charge into the hopper, when the explosion occurred. The explosion was internal and no injury resulted except that there was a loss of the charge.

It was reasoned that there were two possibilities which might have caused the explosion either by dust or by residual benzine vapors set off by the air rushing into the dryer. The report states the normal procedure is to break the vacuum on the dryer with inert gas. The evidence seems to point to the fact that the inert purge was not reaching the air space in the dryer, due to plugging of a felt filter in the dryer. As a result the pressure gauge was giving the operator an incorrect indication of the actual pressure.

Corrective action to insure more positive purging has involved changing the inert gas line so that it can enter with no restriction. Also there is a rotameter controlled purge on the dryer for use during the dumping operation.

An accident occurred at a dock of the Akron Chemical plant which involved a hand electric fork truck. This type of electric powered fork truck has the controls in the steering handle and is operated by hand from off the truck.

The shipping man using the hand electric had finished unloading #2 trailer and was preparing to unload #7 trailer. A yard tractor operator arrived and asked the shipper which trailer was ready to be hauled away. In error the shipper said that #7 was empty. The shipper left the dock area to obtain the hand electric truck and in the interim the tractor operator removed the chocks on #7, backed the tractor under the trailer and raised the dolly wheels. At this point the shipper returned and proceded to unload #7. As he backed the hand electric truck into the trailer he saw that the trailer was moving away from the dock, he shouted to the tractor driver, but the driver did not hear him. The shipper immediately reversed the direction of the hand electric truck in an effort to get it back on the dock. Realizing this was impossible because the trailer was still moving, he released his grip on the handle of the hand electric truck. He remained on the dock and the hand electric truck fell to the dock apron. Fortunately no one was hurt and damage resulted only to the electric fork truck.

The Akron Chemical report states that the tractor driver admitted he should have looked into the trailer himself instead of taking someone else's word. In the interest of preventing a similar accident from happening, a visible rear end fastening or chaining device of the trailer is being investigated so that anyone entering the trailer can readily see whether or not it is safe to enter.

K. L. Lindhurst

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5-22-58

B.F.G. CHEMICAL COMPANY, A DIVISION

Inter-Organization Correspondence

To K. Lindhurst	Date May 1, 1958
Location Cleveland Office	From Avon Lake General Chemical Plant

Subject MONTHLY SAFETY REPORT FOR FEBRUARY, 1958

1. Accidents with experience value.

On April 23, 1958 at approximately 3:20 p.m. during the cleaning operation of a poly with a hard charge in it, Helper, was overcome with VCL vapors. The standby immediately sounded the rescue alarm and the rescue was made in approximately one minute. Unconsciousness was not complete as the helper did converse with the rescuers although he has no recollection of doing so. He was taken to dispensary and given oxygen as an added measure. Plant physician, Dr. Newman, was called and after a checkup, was okeyed by the doctor.

Investigation of this accident brought out the fact that in breaking up the hard charge, some of the lumps were too large to pass out the manhead with the evacuation hose in the vessel. The hose was removed while the lumps were passed out to the standby. The hard material is known to contain VCL in some quantity and pockets of VCL are loosened when broken into. In this case VCL gas was released and the poly cleaner breathed in the fumes because of lack of evacuation through the removed hose.

In order to prevent this same occurrence, on all hard charges in the future, the evacuation hose will be placed into the vessel through the vent stack opening where it will be in a position so that it will not be removed during the cleaning of the poly. This procedure is now in effect.

2. Fires. (Fire in Carbopol (K-934) Drier)

On Sunday morning at approximately 4:10 a.m. an internal explosion took place in the Carbopol Drier at the Beta Building. No injuries resulted and loss to equipment reflected in down time for cleaning and the loss of the charge.

In reconstruction of what happened, the operator states that the drying cycle of the charge was normal and was completed. At this point he readied the drier for dumping to the hopper below the drier. He states that at this time he positioned the drier so that the manhead was accessible and removed the bolts on the manhead. A worm gear on the manhead was not touched. He then postioned the drier so that the manhead was at the bottom and at this time the explosion occurred. The operator further states that at no time did he notice a flash from the explosion.

On investigation it is felt that there could be two possibilities of the type of explosion, either dust or benzine vapors which may have remained in the drier set off by air rushing into the drier. Under normal procedure the vacuum on the drier is broken by an inert gas purge through the seal on the shaft and into the drier through a felt filter. Evidence seems to point to the fact that the purge was not reaching the air space in the vessel due to the fact that the filter was plugged by carbopol to the extent that the pressure gauge was giving the operator a reading

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not true to the actual pressure of the vessel and as a result the vacuum was not completely broken at the time he broke the seal on the manhead. This caused a rush of air into the drier with the explosion resulting.

In order to insure against this incident from occurring again, plans are underway to change the inert gas purge line so that it will enter the vessel directly with no restriction. There will also be a rotometer controlled purge on the drier at all times during the dumping operation. This will be done before the system is placed back in operation again.

3. New procedure or significant change in existing ones.

None

4. Good or bad experience with any safety appliances.

None

5. Other.

None

A. B. Csontos

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AGC/jrc

B.F.GOODRICH CHEMICAL COMPANY

To	✓ G. ~~A. Balzersen~~	Date	March 10, 1960
Location	cc R. Toole S. Nalbone	From	F. Dean

Subject: Lost Charge in Number 2 Poly

On March 9th at 2:15 P.M., charge no. 9718 in number 2 Polymerizer blew through the rupture disc. The flange on the blow out line, directly above the seals, was not properly tightened or drawn down. As a result a large portion of the contents of #2 polymerizer blew out this flange, spraying the area. Some of this spray was directed to the open man-hole of number one polymerizer where an operator was working inside. The operator attempted to get out of the poly but had to have assistance from fellow workers in order to get out and away from the VCl vapors.

Further investigation of this incident revealed the following facts:

1. #2 Poly had been charged in the normal manner with no unusual happenings and had been going about 25 minutes. Temperature recorded on the chart was 93° when it blew.

2. The operator did report that during heat up of water, he had some trouble with belts slipping of the pulleys.

3. A maintenance check revealed that the large shieve had dropped on the shaft and could possibly have been binding on the top of the housing. The belts were very loose and the motor could be run and not be turning the agitator.

4. The operator cleaning #1 poly was the same man who had helped to charge #2 Poly. He tried to signal for help by use of the poly alarm horn but the horn did not sound because the instrument room power had been shut off and the plant shut down as an emergency measure due to the heavy concentration of vinyl gas in the building. The alarm horn was tested as soon as power was restored and found to be in good working order.

   flanged spool pieces

5. A check of other polymerizers showed that the connection on number 1 and 11 are cocked and they could possibly spray out in the same manner should the seals be ruptured. To prevent any such happenings again, a work order has been issued to check all such flanges and correct any that need it. Also the opposite flanges are to be well marked on the edges so as to get the same aligment each time after they have been taken apart.

Frank
Did you check other poly belts? Should [illegible] schedule?

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