



INTER-COMPANY AND OFFICE CORRESPONDENCE

To: G. D. Bevis

FROM: W. T. Gerson

Dept. Branch Division Company

Vinyl Chloride Safety Association

Meeting - Atlanta, Georgia

LOCATED AT: Illiopolis, Illinois

SUBJECT: January 13 - February 1, 1973

DATE: February 21, 1973

Attached find an outline of information of an operations and safety nature developed in discussions at the subject meeting. No significant information was developed on topics number one, two, and six of the agenda. No discussions were held on items seven and eight due to lack of time.

W. T. Gerson
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PVC Superintendent

WTG/ps

cc: R. Landon
R. Mercier
D. Young
H. A. Peed
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BOR 005769

1. MAJOR ACCIDENTS/INCIDENTS REPORTED IN THE PVC INDUSTRY

TEI/NECO

Blew up stainless steel slurry tank.

Cause: Make-shift vortex breaker on bottom of agitator came loose, causing the agitator to whip. The agitator rubbed on the stainless steel collar and the heat generated ignited the vapors. The top 2/3 of tank and attached piping were blown through the roof. The slurry tank next to it caught fire. There were no injuries.

Corrective Actions Taken

1. Blanketing tanks with nitrogen.
2. Replaced stainless steel collar with lead shield.
3. Shut agitator off when tank is empty.

Notes: Tenneco currently breaks vacuum in the reactors with nitrogen.

Six to seven manufacturers operate slurry tanks with lids open (no action to control MVC/air ratio).

Four operate tanks with lids bolted (no actions to control MVC/air ratio).

Four operate with step bearings.

Six to seven people purging tanks with air.

Dow has LEL detector in outlet air reads 10-200 ppm.

Air in slurry tanks reported as tested with explosimeter no reading above liquid (Air Flow Unknown).

Believe Tenneco has stripper - asked how many people had light and site glasses on their tanks - indications are majority have strippers.

Firestone recovers in stripper to 0.15% residual MVC in slurry-controlled by regular laboratory analysis.

Several companies report LEL + concentrations in slurry tanks and centrifuge effluent but state that continuous purging of slurry tanks with air eliminates MVC from centrifuge effluent and at 3,000 cfm eliminates LEL concentrations in the tank.

GOODYEAR

1. The 20" quick opening manhead (similar to submarine hatch) blew off reactor. Ignited MVC - Burned for one half hour. Four men injured (none died)
2. Lost two initiator (ACSP) storage buildings in two months. Reason unknown.

Notes: Nine others experienced initiator storage fires in past year.

Carbon dioxide not effective since catalyst supplies its own source of oxygen.

Generally felt fighting with water to keep cool only effective tool.

GENERAL TIRE

1. Four thousand gallons MVC spill in building during total plant maintenance shutdown (no electricity).

Cause: Maintenance opened line to clean with steam which had not been properly valved and vented.

Note: Line was coupled with victaulic coupling, a valve indicator was on backward under storage tank.

Had no power or fire, water took six hours to evaporate MVC from building.

2. Ten thousand gallons RMVC spill in dike in tank farm.

Cause: Used 3/4 inch threaded nipple and valve to bleed off MVC water.

The line broke and operator could not shut four inch valve on bottom of tank. Lost most of contents of 15 m gallon tank before man could get Scott Pak and cheater to close valve.

PANTACOTE

1. Had total power failure for four hours in Paisaic, New Jersey.

The rupture disc would not blow due to pin hole in disc.

Have installed bleed around relief valve.

Many others have vents above disc but, vent into building.

2. Six MVC into D.I. water tanks - rupture seams on two 10,000 gallon tanks.

Believed no explosion. Goodrich has experienced MVC in tank with ignition.

3. Gas control valve on reactor opened during polymerization by operator error.

Have now install valve plug with hydraulic jack to prevent accidental opening. Making valve difficult to open.

UNKNOWN INCIDENT

Fire in dryer building blew up due to MVC in underground drain line.

Leaking through on reactor. Blew MVC through RMVC foam trap through drain valve into reactor room drain. The MVC froze in underground drain line. Drained through dryer room - no injuries.

DIAL IND. CHECK

Operator inadvertently opened Lenape Forge quick opening-manhead on newly closed reactor. Pressure blew out o-ring venting contents into building. Deluged out 1.5 mm gallons of water into building in 45 minutes. Fans move air at 12 air changes per hour. Nobody was injured.

MEXICO - TWO COMPANIES

Two men died in slurry tank areas.
One man died from lack of oxygen.
Second man fell from tank no autopsy performed.

ENGLAND

Accumulation of Polyperoxides in RMC storage tank. Had been out of service for two and one half months. When readied for service found green liquid - white putty like smelled of formaldehyde.
One man injured by low grade explosion.

Note: Firestone keeps 20% caustic solution in bottom of RMC tank.
Candrich analysis peroxides in water from RMC tank.
Several check oxygen in vapor space in all tanks.

II. SPECIAL PRESENTATION

A. A. Allen of Dow presented a study on the sampling of chlorinated hydrocarbons as related to OSHA. Discussion related to inexpensive method to measure total exposure experience of worker to determine compliance to OSHA eight hour exposures. He will distribute copy of work to each member company after release by Dow Legal Department.

III. OSHA INSPECTION AT A PENTACOTE INJECTION MOLDING PLANT - EARLY 1972

Inspection was result of written complaint by Union President. Inspector met with management - began to review OSHA 101 log (accidents) and reviewed first aid training, fire brigade, rescue squad programs.

Inspector held a one - hour complaint session with Union President and ten Union Stewards.

Inspector spent balance of two days on plant inspection - looked for unsafe acts, unsafe signs for hazards. All items found were on list of most common violations. OSHA returned back to check action on items listed first day.

Cost of inspection - \$270 in token fines (plant was in major violation of 1910.101 - standard).

Four other companies reported OSHA inspections (all resulting from complaints)

All resulted in token fines for minor violations.

All received positive response by unions after inspections.

IV. CONCURRENCE OF INTEREST

Many incidents involving manpower who have been overcome by MVC involve personnel "not ill, the smell".

One manufacturer has installed spray heads to routinely remove monomer (PE plant) from areas with poor ventilation.

There is nothing in OSHA forbidding the cleaning of dust off of clothes with low pressure air.

Several manufacturers check for dissolved oxygen or peroxides routinely in recovered MVC.

Firestone tests and controls residual MVC in slurry from strioper at 0.15% maximum. To explosive range for vinyl chloride has recently been changed to 3.6-3.8% in air. All references were made to the need for a critical mass before an explosion from MVC - slurry would result. No data available.