

bottom of a condenser to check for and remove any unconverted by-products. In performing this operation it was necessary to discharge some vapors to insure complete withdrawal of the condensate.

The injured had been doing this during his shift without using the air-line respirator which was prescribed protection equipment for this operation. In addition to this exposure, he had entered the barricade during the early part of the shift to make minor repairs to a leaky blower.

The injured worked for several days with no apparent ill effects. While at home he developed a fever and shortness of breath which was subsequently diagnosed as acute bronchial asthma. He was home for three days.

In this case, the injured failed to obey written and verbal instructions to wear an air-line respirator, and the injured's shift leader failed to enforce this rule. Since then, all operators in this group have been re-instructed in the necessity for observing regulations regarding barricade entry, and have been informed that repeated violation of safety regulations may constitute grounds for dismissal.

WRONG TYPE MASK

An employee washing out a chlorine tank car passed out due to insufficient oxygen. A fellow employee put on a Type N universal canister gas mask and entered the car for rescue purposes. He, too, passed out and it was necessary to use self-contained breathing apparatus to rescue both. Fortunately, both men recovered.

Fire was located in a drying-storage room of steel construction, measuring 8 feet x 50 feet x 30 feet closed by an asbestos curtain at one end. There was no possibility of ventilating. The room was located on the sixth floor of a factory and contained a large quantity of "wood flour" (pulverized saw dust), used in casting ornaments, contained in 100# bags. Fire was started by an electric motor in the rear-most portion of the room.

The fire had smoldered for some time and this room was heavily loaded with smoke, and obviously a high CO and CO₂ content. Alarm was sounded when the heat finally

built up enough to activate a sprinkler head, which transmitted an A. D. T. alarm. Since very little smoke was visible external to the drying room (which was held at approx. 150°F) the first firemen went in without any protection. They were quickly overcome.

Members of the rescue company followed closely behind using Type N universal canister masks. These functioned well on the sixth floor outside the drying room, but inside, one of these five men was overcome. The other four heeded the warning sign of "overbreathing" and retreated to fresh air before being overcome. These same men returned to the room after donning self-contained breathing apparatus. In all, 30 men were overcome in this multiple alarm fire—multiple only because all men from the first companies were overcome. All the firemen recovered.

NO RESPIRATORY PROTECTION

A chemist was preparing to use hydrogen sulfide for a determination and when the valve was opened, a leak developed because a washer did not seat properly.

Before the employee could close the valve, the hydrogen sulfide was ignited by the flame from a bunsen burner located in the same hood. In an attempt to close valve, the employee re-entered the room, without wearing protective equipment, was overcome, and struck his head on the edge of a bench as he fell to the floor. He was rescued by another employee who was wearing a demand self-contained breathing apparatus. He was hospitalized for three months and as a result of this incident lost his sense of smell.

ANOTHER SOLVENT INCIDENT

Two electricians, journeyman and apprentice, were working in a concrete pit—four by six foot top opening and standing on the bottom, the ground level was in the proximity of their eyes, nose and mouth. Repair of the small motor involved using a solvent an inhibited grade of 1,1,1-trichloroethane. Approximately 10 minutes after entering the pit, the one electrician appeared to be swaying, somewhat in a stupor and somewhat incoherent. A combination of lifting and pushing forced the man out of the pit. The other electrician used the ladder in leaving the pit.

A few minutes exposure to fresh air and the "overcome" electrician stood up and walked to the dispensary. Examination revealed him to be coherent and no signs of narcosis. He rested for about half an hour and returned to his job—by this time the job in the pit was completed.

A few pertinent facts are in order: solvent was not spilled on the floor of the pit, the "overcome" electrician had returned to work that morning after being off for several days due to a bronchial inflammation, and the other electrician never demonstrated or mentioned any ill effects.

INERT GAS IN TANK CAR

A tank cleaner entered a tank car (which had previously contained caustic soda) and started to wash it down with a hose with the bottom outlet open. After failing to reappear in a normal time, investigation revealed the man lying in the bottom of the car. Upon removal and attempts at resuscitation, it was determined that he had died as a result of weak alkali solution having been taken into the respiratory tract.

This is strong evidence that the inert gas used to unload the car was a byproduct of chemical operations, low in oxygen and could have contained carbon dioxide, carbon monoxide, nitrogen and other constituents. Upon checking the air oxygen and 2000 ppm of reducing gases which would commonly be reported as carbon monoxide.

Inasmuch as the official coroner's report stated that the man fell to the bottom of the car apparently due to heat exhaustion, there was no significant publicity concerning this incident. Corrective measures have been taken to avoid any recurrence.

TANK JOB CLAIMS LIFE

A maintenance mechanic lost his life, and his assistant narrowly escaped in tank incident.

Repair work had been scheduled inside the tank to begin after lunch, and two men assigned to the job. The mechanic decided to look over the job about 11:30 a.m. and went into the tank after sending his helper for certain supplies. The inert gas (which contained essentially nitrogen with small percentages of CO and CO₂) supply to the tank had not been shut off, since the mechanic had not informed anyone of his entry. The mechanic was quickly overcome.

His helper returned a few minutes later, shouted for help, then went into the tank to aid the first man who was unconscious. Before help arrived, the helper was also overcome, but both men were promptly removed to fresh air. The helper was successfully revived, but the mechanic could not be brought back to life.

Failure to follow established tank-entry procedures was the reason given for this fatality.

INERT GAS

Two men entered a kettle to repair an agitator, which is normally a two day job. On the first day nothing unusual happened. On the second day the men went into the kettle, worked for an hour, and came up for a coffee break. When they re-entered kettle, they began to feel weak. They were actually too weak to climb out of the man-hole after 15 minutes, but finally crawled out. They came to as they stepped out into the air.

After investigation, it was discovered that one of the men had opened an inert gas line instead of an air line. Close to the top of the kettle was a section for a hose line to be piped to outside the building. The hose was only half-way down into the kettle. The inert gas was heavier than air, when they bent over to pick up tools, they would get inert gas until they eventually were made ill.

An engineer went down to inspect a kettle. He began to feel sick and came out. Upon investigation later they found the kettle had been "blown-out" with inert gas and did not follow through by removing the gas with proper air ventilation. (The engineer recovered immediately upon leaving the kettle)

A man went into a non-enameled kettle. The complete kettle was blanked off with exception of entrance. The kettle had been "blown-out" with inert gas. He was overcome. It was necessary to resuscitate the man quite a while before he recovered.

ILLUMINATING GAS IN TRENCH

Two men were working in a series of three by seven by seven foot trenches dug along a 75-foot length of a street. While tapping a high pressure illuminating gas main to install a jumper line into a low