

NITROGEN FATALITY AT A CHEMICAL FACILITY IN HAHNVILLE LA.

A unit was shut down for a periodic maintenance turnaround (T/A). One of the tasks was to replace two beds of air-sensitive catalyst. The T/A Supervisor, who had over 35 years experience in the unit, started a nitrogen purge into the catalyst vessels and extended it to the associated piping to keep air out.

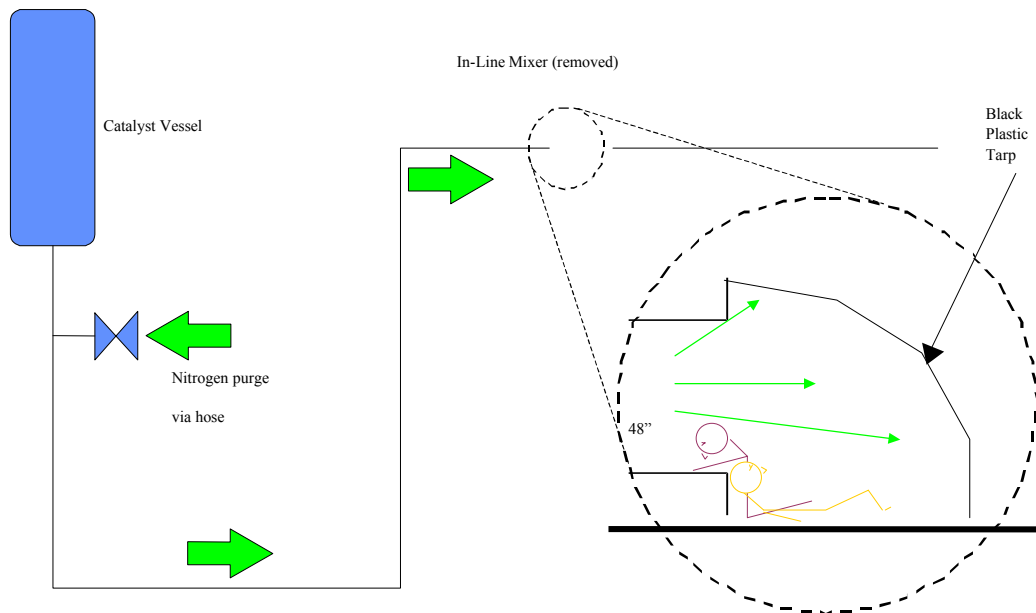


Fig. 1 Simplified Diagram

A few hours later the T/A supervisor, and another experienced operator went to inspect the 48" diameter piping near the In-Line Mixer (see diagram). Since the inspection used UV light, they had a black plastic tarpaulin held up around the pipe end to block out the daylight.

Unfortunately, the plastic also formed a "confined space" since it prevented natural ventilation. The oxygen concentration was reduced by the nitrogen purge. The two men lost consciousness so gradually that the laborers holding the tarp in place didn't notice anything unusual for over 10 minutes. The operator died of asphyxiation. The supervisor was badly hurt, but survived.

LESSONS:

- This unfortunate accident is another case showing why nitrogen is sometimes called the most dangerous¹ gas in the chemical industry and deserves to be handled with the greatest of care.
- It also shows that when a flow of purge gas is started into equipment, you should think about all the hazards created wherever it comes out.
- A third lesson is that "confined spaces" can be created during maintenance or construction activities.

Excerpted from CSB report 98-005-I-LA by A.M. (Tony) Downes, March 1999
For more information read the report at [HTTP://WWW.CHEMSAFETY.GOV](http://www.chemsafety.gov)

¹ Nitrogen isn't toxic, but more workers have been killed by Nitrogen asphyxiation in the US over the past 10 years than by exposure to any other industrial gas. One major hazard is that people who are exposed feel no warning signs as they lose consciousness.