

What happened?

An ADR-certified combined high pressure/vacuum truck containing a flammable sludge was to be emptied. After the truck had been put in the right position and everything was ready to start emptying the load, the main switch was turned and the release button on the control box pressed. When the release button was pressed, the control box exploded. As a result, the employee received a severe head injury.



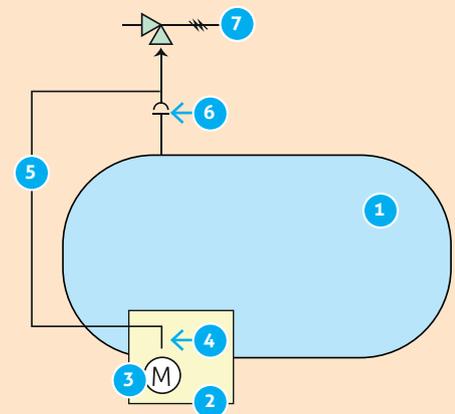
Consequence

The victim was kept in an artificial coma for 11 days. Several operations were carried out on his face. The victim's eyesight has been badly affected. In addition to the physical damage there is also mental injury. It is uncertain whether he will make a full recovery or not.

Cause

The investigation showed:

- the rupture disc was broken
- the truck's pressure gauge (with maximum reading needle) was in the control box, not on top of the tank
- the hose of the (maximum) pressure gauge was loose, so that there was an open connection between the tank and the control box. This is probably also the reason why the defective rupture disc was not identified
- this open connection between the tank and the control box allowed an explosive mixture to form in the control box
- activating the main switch in the control box provided a source of ignition for the explosion



Situation in the combination truck at the time of the accident

1. Tank
2. Control box
3. Pressure gauge for defective rupture disc
4. Detached hose
5. Connection hose
6. Rupture disc
7. Pressure relief valve



Note!

1. Requirement

The analogue (maximum) pressure gauge must be placed next to the rupture disc on top of the tank (ADR).

2. Requirement

There may be no hoses/pipes or potential open connections from the tank to the control box/switching panel where electrical circuit switching takes place (ADR).

3. Recommendation

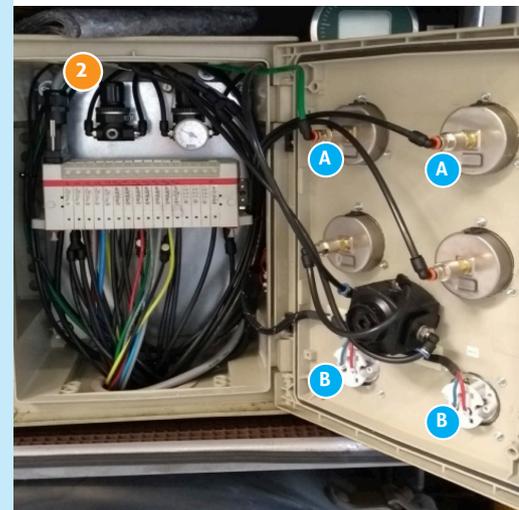
Analogue pressure gauges for pressure and suction should preferably be placed at least 50 cm from the control box/switching panel. If the distance is less than 50 cm, then the residual risks must be identified and additional containment measures taken if necessary (e.g. ensuring adequate ventilation).

4. Recommendation

Be aware that a vehicle that is approved by SIR or ADR is not a guarantee that the vehicle is explosion-proof and that all risks are covered. You should always carry out a risk analysis.



A. Air hoses
B. Electric circuits



The SIR would like to emphasize that it is very important that incidents are reported, as lessons can be learned from them. What happened to someone else today could happen to you tomorrow!

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