

## **NITROGEN RISKS**

### **1. General**

Nitrogen is present at the company, mainly in gas form, in a pipe system that extends over all operating departments. There is also a tank containing liquid nitrogen, which is a reserve and backup in the event of large withdrawals. There are also portable steel cylinders that contain nitrogen gas.

### **2. Use**

The nitrogen is primarily used as a shielding gas for process equipment. It can be connected to appliances and pipes through fixed connections and temporarily even by hose.

### **3. Risks**

The air we breathe usually contains 20.9% oxygen, 78% nitrogen and 1.1% other gases. The nitrogen displaces oxygen and if the oxygen level is significantly below 20%, the situation is life threatening. The rule is that we should not work in areas with oxygen levels lower than normal (about 20%) without an air respirator.

One important thing to know is that if you inhale pure nitrogen unconsciousness occurs immediately.

The biggest danger from nitrogen is entering confined spaces where the nitrogen has displaced the oxygen. Such areas are almost exclusively tanks, containers and other process equipment. However, there are also areas in buildings where nitrogen can be connected to equipment. Such areas must be alarmed for low oxygen levels. Typical examples are areas containing pneumatic instrumentation. Instrument and working air has nitrogen backup at low pressure.

### **4. Access to process equipment**

It is forbidden to enter closed process equipment without a written work permit. The person giving permission is trained to manage the risks.

### **5. Hoses**

A special type of hose is available for handling nitrogen. The hoses have specially threaded couplings with ears so that they can be distinguished from other hoses.

### **6. Fixed pipe system for nitrogen**

The pipe system for nitrogen must be marked with pipe tape for nitrogen. All hose outlets must be marked "NITROGEN".