



# Oxygen Safe Lubricants

## Oxygen + Lubricants = Potential Danger

The importance of the use of correct lubrication is often overlooked. In some cases using the wrong lubricant can result in unwanted friction, premature wear, sticking and noise.

In other critical applications the consequences of using the wrong lubricant can be far more severe even causing catastrophic failure of equipment and in some cases potentially loss of life.



In order to choose the best lubricant for an application many different factors must be considered, for example the temperature of use, the potential for contamination of the equipment, presence of water or the use of cleaners and solvents which can remove the lubricant film.

In all cases the dynamics of the application must be understood as must the environment in which the lubricant is expected to operate. Often these factors are not considered due to ignorance of the importance of the lubricant to the proper operation of the equipment. In fact the lubricant is as important as any other component on the equipment and is often the 'weakest link'.

When considering these applications it is easy to see that the incorrect choice of lubricant could be catastrophic however there are many other areas where the use of a lubricant that is not compatible with its surroundings or environment can be just as risky.

One of these critical applications is in high pressure oxygen, compressed air and nitrous oxide systems where there is the need for a great deal of care when using lubricants in the vicinity.

***Oxygen reacts with conventional lubricants including mineral & other synthetic oils & greases and this greatly increases the potential for explosion or fire***

**To understand the problem we must consider the 'Triangle of Fire'**

For combustion to take place we require three elements to be present; heat, air and fuel. In the case of high pressure air the content of oxygen is higher than normal, the flash point (temperature at which the fuel will combust) is greatly reduced.

In this case the 'fuel' which is often introduced without consideration is an oil or grease. Using a conventional oil or grease in these cases can be extremely dangerous leading to combustion or even an explosion.

The wide range of chemically inert **Zarox** and **IKV-Fluor** fluorinated lubricants ensures the best available lubrication for all oxygen service equipment.

The products provide excellent lubricity leading to extended equipment life versus alternative technologies.

In addition to being non-reactive towards oxygen, these products are also safe to use with other oxidising chemicals, such as chlorine. They are chemically inert, thermally stable, non-flammable, and non-volatile.