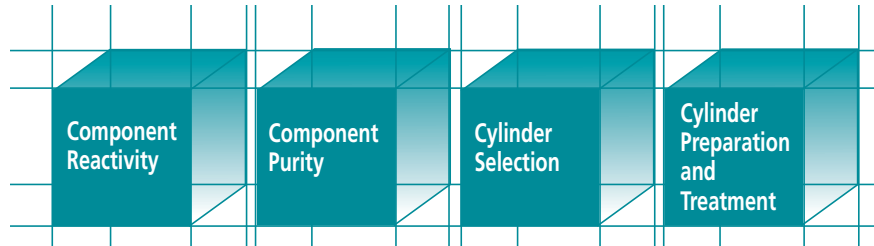




Introduction

Gas Mixture Technology



For the past 90+ years, safety has been paramount in all Matheson's activities and product offerings. Matheson continuously strives to develop and use the most up-to-date gas mixture technology in order to provide the safest and most reliable gas mixtures.

The Building Blocks for a Solid Foundation: Gas Mixture Technologies

Understanding the application and developing optimal product specifications for use with the application is only part of the challenge in specialty gas manufacturing. Understanding how to make gas mixtures consistently is the rest of the challenge. Gas mixture technologies are the building blocks required to make a solid foundation for Matheson's specialty gas mixtures.

• Component Reactivity

The reactivity of each component in a calibration mixture is an important factor when engineering mixtures. It is essential to know how each component reacts with other minor components, the balance gas, the internal cylinder wall and valve. At Matheson we assess each component of a calibration mixture and take all necessary precautions in order to provide a stable, long lasting and safe mixture to our customers.

• Component Purity

All mixtures ranging from the simple two component mixtures to the more complex 50 component blends require high purity components. Raw material impurities can complicate both the blending process and final analysis. Matheson ensures the lowest levels of contaminants by setting strict contamination levels and assaying all raw materials used in a mixture. This attention to detail enables our customers to attain the most accurate and precise calibration data.

• Cylinder Selection

Matheson has set guidelines for choosing which cylinders are best suited for each mixture. For many mixtures, carbon steel cylinders are suitable. However depending on component reactivity, purity requirements and desired shelf life, aluminum, stainless steel or internally treated carbon steel or aluminum cylinders may be required.

• Cylinder Preparation and Treatment

In general, each cylinder is washed, rinsed, dried under a vacuum and rinsed with the mixture balance gas. The types and repetitions of these procedures depend on the mixture to be prepared.