

## Introduction

### Optimal Gas Mixtures for Optimum Instrument Performance

Chemical and process analysts must have gas mixtures that allow for consistent results and optimum instrument performance. Specialty gas manufacturers have an obligation to understand gas analysis applications in order to provide optimal gas mixtures for consistency and accuracy in lab operations.

Understanding what analysts do and developing products for those direct applications is one of Nippon Sanso Matheson's specialties. Calibration standards are used in a wide variety of industries. The need for accurate and precise standards has become increasingly important because of the consequences involved with improper instrument calibration.

#### **For example:**

**On-line analyzers** have real-time control of large-scale, industrial processes. Accurate calibration of these analyzers is critical to the optimization of process controls, thereby optimizing company profits.

**Continuous Emission Monitoring Systems (CEMs)** monitor the emissions of large electric power generation plants, cogeneration plants, boiler operations and other industrial processes. Accurate calibration of these systems is critical for compliance with federal, state and local environmental regulations.

**Gas chromatographs and other analytical instruments** are used to analyze many types of samples. Some of these analytical results are used as evidence in courts of law. Proper calibration of analytical instruments is critical to support evidence introduced in legal proceedings.

**Control of engine emissions** from jet aircraft engines to automobiles to gasoline-powered lawnmowers is coming under increasingly tighter regulation. The calibration of instrumentation used to measure and evaluate these emissions must be done with exact calibration standards; any mistakes could result in emission non-compliance because of these tighter regulations.

**Corporate and institutional R&D applications** require the use of calibration standards to benchmark analytical processes as well as establish baselines for research and product development. Accurate calibration standards eliminate bias while ensuring application integrity.