



## Gas Standards Generators

*Permeate to Calibrate*

# The Calibration Specialists...

KIN-TEK Gas Standards Generators use Trace Source™ Permeation Tubes to generate accurate, on-line calibration standards. Gain the convenience of on-line validation, plus the assurance of NIST traceability.

There are permeation tubes for over 500 chemical compounds, including Toxic Air Pollutants, VOC's, Acid Gases, Amines, Sulfurs and Hydrides. The permeation tubes can be used in any KIN-TEK permeation oven.

## FlexStream™ Gas Standards Generator

The FlexStream™ Base Module is the core module of KIN-TEK's flagship FlexStream™ calibration gas standards generating system. The FlexStream™ is a fully automated, expandable, full capability permeation tube system for generating precision calibration gas mixtures. The Base Module utilizes a Mass Flow Controller and PID Temperature Controller for precise measurements. It can be used as a computer controlled, standalone permeation tube calibrator, or combined with other FlexStream™ modules to create more complex ppm, ppb, or ppt mixtures. The FlexStream™ Base Module incorporates the computer and color touchscreen used to control the entire system. FlexLink™ software is provided with the FlexStream™ Base Module.



### FlexStream™ PM Auxiliary Permeation Module

Auxiliary permeation modules are additional permeation ovens that allow multi-component mixtures when permeation tubes must operate at different temperatures, LFH high rate tubes are required, or components must be individually selected for addition to the mixture. Each PM module keeps its permeation tubes ready for instant use. The PM module is controlled from the Base Module touchscreen.

### FlexStream™ GF/PM Gas Feed Permeation Module

Some component compounds (e.g., oxygen or methane) have vapor pressures too high for typical permeation tubes. Gas-Fed permeation tubes allow the user to add component compound to the tube as a gas under controlled pressure, thus allowing tubes for previously unavailable compounds. The GF/PM provides the special controls required for these tubes. The GF/PM module is controlled from the Base Module touchscreen.

### FlexStream™ SD Secondary Dilution Module

The SD module extends the concentration range from any permeation tube by providing an additional stage of dilution. The SD module can also give variable concentration into a fixed output flow. The SD module is operated from the Base Module touchscreen.

### FlexStream™ HG Humidification Module

Many applications require the calibration gas standard to simulate "real world" conditions including the presence of humidity. The FlexStream™ HG is used to add that humidity. The computer system automatically adjusts flows to maintain %RH at varying total flows, or adjusts to change %RH as required. The trace concentration mixture does not contact liquid water. The HG module is operated from the Base Module touchscreen.

### FlexStream™ IM Interface Module

The Interface Module is designed to match the conditions under which calibration gas is delivered to the requirements of that application. This is a "passive" module and can be used with any FlexStream™ system. The IM is manually controlled.

Each FlexStream™ System can accommodate the FlexStream™ Base Module with two optional modules.

Multiple cabinets may be used to accommodate additional modules for the most complex applications.



## 491Flex™

### Gas Standards Generator

The 491Flex™ is a manually operated, expandable, full capability permeation tube system for generating precision calibration gas mixtures. Mixtures are produced by diluting the small flow from TraceSource™ permeation (or diffusion) tubes with a larger precisely controlled flow of matrix gas, typically nitrogen or zero air. The system integrates with other 491Flex™ modules, and continues to offer Zero and Standby functions. The 491Flex™ is ideally suited for generating trace concentration – ppm, ppb, and ppt – mixtures. Mixtures contact only inert materials.



## EcoFlex™

### Gas Standards Generator

The EcoFlex™ Perm Tube System is a standalone system designed for creating trace concentration gas mixtures. Mixtures are produced by diluting the small flow of vapor emitted by Trace Source™ permeation (or diffusion) tubes with a larger precisely controlled flow of inert matrix gas, typically nitrogen or zero air. The EcoFlex™ is ideally suited for generating trace concentration – ppm, ppb, and ppt – mixtures. Mixtures contact only inert materials.



## CO395Flex™

### Certification Oven

The CO395Flex™ Certification Oven is a stand alone version of the permeation tube oven used in the KIN-TEK 491Flex™ Modular Gas Standards Generating System. The CO395Flex™ is a compact, economical unit designed to maintain permeation tubes in a constantly equilibrated state, ready for immediate use in each application. This feature is especially useful where the weight loss of the tube(s) is continually monitored to ensure accuracy, or when permeation tubes are needed to trouble shoot an analyzer providing pre-heated tubes ready for immediate use.



## Span Pac™ H<sub>2</sub>O

### H<sub>2</sub>O Gas Standards Generator

The Span Pac™ H<sub>2</sub>O series is used for calibration of trace moisture monitors. These units are designed to exclude atmospheric moisture and deliver very trace quantities of H<sub>2</sub>O. The basic system provides the 100ppb to 100ppm range. A special welded system can be used to provide 10ppb to 100ppm range, and the Span Pac™ H<sub>2</sub>O-SD system can be used for very wide ranges from <1ppb to >1000ppm. Span Pac™ H<sub>2</sub>O systems are manually operated. They feature electro polished, passivated piping throughout, VCR® input/output fittings, and use high purity components.



## Span Pac™ I

### Industrial Gas Standards Generator

The Span Pac™ I Industrial Gas Standards Generator is used for calibration of on-line process analyzers and continuous emissions monitors. The Span Pac™ I accepts any Trace Source™ permeation tube to produce standards over the range from ppb to over 1000ppm. It is mounted in a rugged, NEMA 4, wall mounted cabinet and can be supplied with Type X or Z purge for service in hazardous atmospheres.



## Span Chek™

### Portable Gas Standards Generator

The Span Chek™ is a field portable instrument for “bump checking” or in-situ calibration of toxic gas monitors and other passive sensors. It uses Trace Source™ Disposable Permeation Tubes to generate concentrations from ppb to over 30ppm (depending on the compound generated). Dilution gas is supplied by an internal air pump operated from a rechargeable battery.

# Gas Standards Generators

KIN-TEK Analytical, Inc. is a leader in providing Trace Concentration Calibration Gas Standards. We manufacture permeation devices and instruments that are used for dynamically creating and dispensing high quality gas mixtures used as calibration gas standards. Our product line includes the FlexStream™ System, an automated system including a full range of Calibration Gas Standards Generators and other instruments and devices to solve our customers' most complex calibration challenges. A KIN-TEK permeation tube used within a KIN-TEK gas standard generator provides the best scenario for calibration.

## Trace Source™ Permeation Tubes

### Trace Source™ Disposable Permeation Tubes

Trace Source™ Disposable Tubes are short lengths of Teflon® tubing with the liquid phase of the compound sealed inside. Several versions are offered to satisfy special applications. The SRT and HRT tubes are made of different types of Teflon®. EL versions have a non-permeable reservoir that extends the operating life of the tube, and “Wafer” tubes have very small permeation areas for low rates. Disposable tubes can be used for many calibrations but cannot be refilled when exhausted.

### Trace Source™ Refillable Tubes

Trace Source™ Refillable Tubes are small stainless steel cylinders with a membrane sealed inside. In Refillable Permeation Tubes, the component compound surrounds the membrane and permeates to the inside, where it mixes with the dilution gas. Refillable Permeation Tubes are designed to be refilled without disturbing the permeation membrane.



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KIN-TEK designs and builds calibration gas systems. KIN-TEK is committed to providing calibration gas standards that meet or exceed the expectations of our customers.

**KIN-TEK**   
*The Calibration Specialists*

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To learn more about KIN-TEK visit [www.kin-tek.com](http://www.kin-tek.com)

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