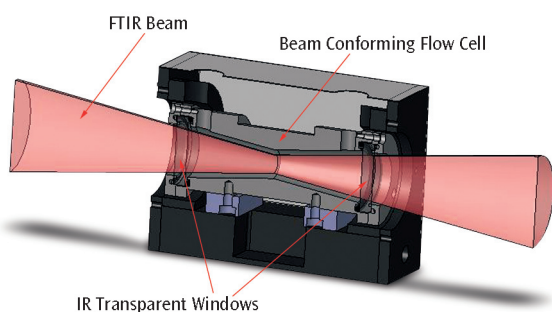


## TGA/FTIR Accessory – Identification and Quantification of Evolved Gases from Thermogravimetric Analyzer



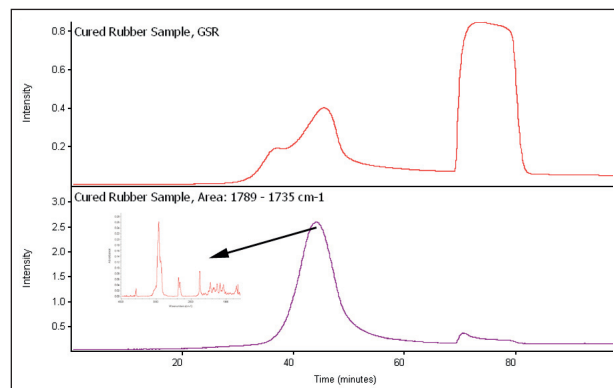
### FEATURES OF THE TGA/FTIR ACCESSORY

- IR beam conforming flow cell design – maximizes IR throughput
- 100 mm IR beam pathlength for maximized FTIR sensitivity
- Baseplate mounted in your FTIR for flexible sampling
- Temperature control settable up to 300 °C for flow cell and transfer line
- User changeable IR transparent windows to minimize cost of operation
- Heated, glass lined stainless steel transfer line for inert transfer of TGA effluent
- Purge tubes provide stable purge environment for the FTIR system



IR Beam Conforming Optical Design of PIKE Technologies TGA/FTIR Accessory

The PIKE Technologies TGA/FTIR Accessory is designed to be an interface for evolved gas analysis from a thermogravimetric analyzer (TGA) to your FTIR spectrometer. Evolved gases from the TGA pass through a heated transfer line into the beam conforming flow cell in the FTIR sample compartment. As these evolved gases travel through the flow cell, FTIR spectra are collected and stored for further processing. Qualitative and quantitative measurements are doable from sample masses – typically in the low milligram range. The PIKE TGA/FTIR Accessory is compatible with most FTIR spectrometers and most TGA instruments.



TGA/FTIR Data for Cured Rubber Sample. Upper trace is the Gram-Schmidt Reconstruct of the TGA evolved gases. Lower trace is a carbonyl reconstruction and a FTIR spectrum from this data set.

During the TGA analysis sample mass is lost through a combination of volatilization and degradation of the sample material. The heated TGA/FTIR system maintains the vapor state of the evolved gases throughout the FTIR analysis.

The FTIR spectrometer is set to collect spectra at 10 second intervals during the evolved gas analysis using the kinetics software package for your FTIR. With this software you can generate reconstructions of total IR response vs. time or temperature (Gram-Schmidt) or specific IR band reconstructions to isolate points of unique component evolutions. FTIR spectra are extracted from the data set and an identification is made by comparing these unknown spectra to vapor phase spectral libraries.

## ORDERING INFORMATION

### TGA/FTIR Accessory Flow Cell

PART NUMBER DESCRIPTION

162-24XX	TGA/FTIR Accessory Flow Cell
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Notes: Please see the FTIR instrument code sheet. TGA/FTIR Accessory includes mount for your FTIR, exhaust line and purge tubes. Complete accessory requires selection of IR transparent windows, heated transfer line and temperature controller. The TGA/FTIR accessory requires installation by a trained service representative – please consult with your FTIR manufacturer.

### IR Transparent Windows for TGA/FTIR Accessory (must select 2 or more)

PART NUMBER DESCRIPTION

160-1320	KBr window, 38 x 6 mm
160-1329	ZnSe window, 38 x 6 mm

Notes: For window compatibility please consult our Materials Properties information.

### TGA/FTIR Accessory Heated Transfer Line (must select one)

PART NUMBER DESCRIPTION

115-0001	Heated Transfer Line for Shimadzu TGA <i>Includes take-off valve modifications</i>
115-0005	Heated Transfer Line for Mettler 851 TGA
115-0006	Heated Transfer Line for Mettler TGA
115-0007	Heated Transfer Line for TA Instruments TGA
115-0008	Heated Transfer Line for TA Instruments Q5000R TGA
115-0009	Heated Transfer Line for TA Instruments Q50/Q500 TGA
115-0010	Heated Transfer Line for TA Instruments 2050 TGA
115-0011	Heated Transfer Line for Netzsch TGA
115-0012	Heated Transfer Line for /PESTA6/4000 110V TGA
115-0013	Heated Transfer Line for SETARAM
115-0014	Heated Transfer Line for PESTA6/4000 220VTGA

Notes: We will need to know the make and model number of your TGA. Please consult your TGA supplier to ensure compatibility with evolved gas analysis. Please contact us about interface to other TGA instruments.

### TGA/FTIR Accessory Temperature Controllers (must select one)

PART NUMBER DESCRIPTION

076-1120	Dual Digital Temperature Control Module
076-1130	4 Zone Digital Temperature Control Module for Shimadzu TGA

Notes: These temperature controllers provide setting for the heated gas cell and the heated transfer line.

### TGA/FTIR ACCESSORY SPECIFICATIONS

Temperature Range	Ambient to 300 °C
Accuracy	+/- 0.5%
Voltage	24 VAC
Sensor Type	3 wire Pt RTD (low drift, high stability)
Controllers	
Input Voltage	110/220 V, switchable
Output Voltage	10 A/24 VAC

### TGA/FTIR Accessory Replacement Parts

PART NUMBER DESCRIPTION

162-2309	High Temperature O-Rings, (1 each), max temp, 325 °C
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Notes: 4 o-rings are required for the gas cell.