



THERMAL APPLICATIONS NOTE

CHOOSING PROPER TUBING FOR PURGE GAS CONNECTIONS

The use of an ambient pressure, dynamic purge gas is important in most DSC and TGA experiments. Hence, the operator's Manuals describe setting up the associated flowmeters and "plumbing". Generally flexible PVC tubing is used as the "plumbing" medium for connecting the source gas cylinder to the flow meter and the flow meter to the DSC cell base or TGA.

There are, however, situations where flexible PVC tubing may not be appropriate. Flexible PVC tubing is an amorphous polymer (polyvinylchloride) and is therefore porous to gas molecules. That means that some diffusion of undesirable outside gases (e.g., oxygen, water) into the purge gas, or undesirable outward diffusion of the purge gas (e.g., ammonia), can occur. Fortunately, the permeability (rate of diffusion) for most of these gases is low. Hence, this diffusion becomes an issue only during long experiments such as modulated DSC (particularly subambient) and isothermal oxidative stability.

To avoid problems, it is recommended that copper tubing be used in place of flexible PVC tubing. Connection of the copper tubing to the standard flowmeters requires special Swage Lock-compatible fittings on the flowmeter. These fittings are available from Brooks Instruments (Ph: 215-542-9960). The part number is 320-b001 BMA. Two fittings are needed for Flow Meter (PN 270134-001) and four fittings are needed for the Dual Tube Flow Meter (PN 270134-002).

Acknowledgment: This applications note submitted by Fiona Leek, TA Instruments Applications Lab (U.S.)

For more information or to place an order, contact:

TA Instruments, Inc., 109 Lukens Drive, New Castle, DE 19720, Telephone: (302) 427-4000, Fax: (302) 427-4001

TA Instruments S.A.R.L., Paris, France, Telephone: 33-01-30489460, Fax: 33-01-30489451

TA Instruments N.V./S.A., Gent, Belgium, Telephone: 32-9-220-79-89, Fax: 32-9-220-83-21

TA Instruments GmbH, Alzenau, Germany, Telephone: 49-6023-30044, Fax: 49-6023-30823

TA Instruments, Ltd., Leatherhead, England, Telephone: 44-1-372-360363, Fax: 44-1-372-360135

TA Instruments Japan K.K., Tokyo, Japan, Telephone: 813-5434-2771, Fax: 813-5434-2770

Internet: <http://www.tainst.com>