

## Product Sheet SC-XRD 43

# TRIUMPH MONOCHROMATOR

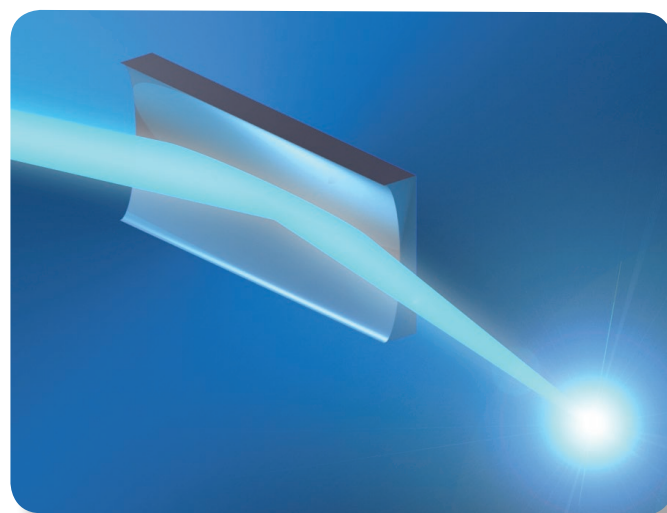
## Triple Your Intensity for Mo $K\alpha$

Molybdenum radiation is the preferred choice for small molecule single crystal diffraction. Traditionally, a flat graphite crystal is used as a monochromator to selectively diffract the preferred  $K\alpha$  wavelength. This reliable and proven setup allows measurement of crystals between about 0.15 mm and 0.6 mm in size. Recent improvements in curved graphite crystal technology have brought a tremendous increase in intensity compared to the conventional graphite monochromator.

The curved crystal TRIUMPH monochromator delivers more than three times higher intensity at the sample. Such a significant increase in beam intensity allows data collection on even more challenging, weakly diffracting samples. The TRIUMPH monochromator provides the homogenous beam profile known from flat graphite based systems.

### Specifications and Features

- Curved crystal monochromator including housing for Mo  $K\alpha$  radiation
- Beam size can be adjusted using easy-to-replace collimators
- Collimators included for beam sizes (mm): 0.2, 0.3, 0.5
- Collect superior data from weakly diffracting samples
- Achieve faster data acquisition and increase your productivity
- Excellent choice for general purpose and service crystallography
- In-field upgrades available, no service engineer required for installation
- Ideal for crystals between ~0.15 mm and ~0.6 mm in size
- Attractive price/performance ratio
- Part number: 842-094800



TRIUMPH Monochromator

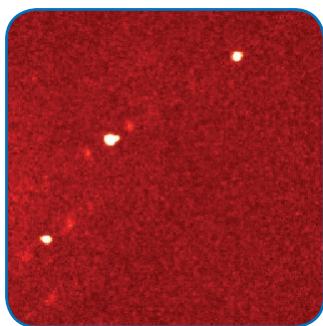


Image using flat graphite monochromator

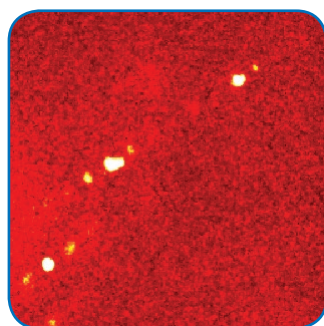


Image using TRIUMPH monochromator

*"Our newly installed TRIUMPH monochromator produces a multiple in intensity when compared with a flat graphite monochromator. For a rather small investment we are now able to achieve both at the same time, shorter measurement times and significantly better data."*

*Prof. R. Boese,  
University Duisburg-Essen, Germany*

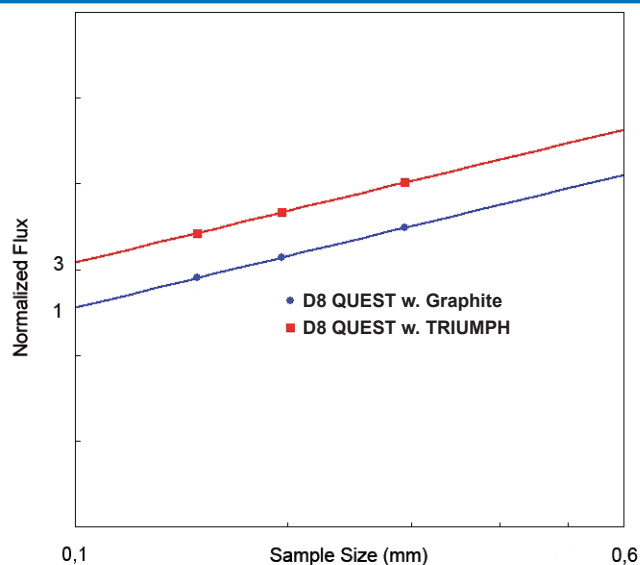
### Application

For comparison, data were collected on a small sample of Bispyrazolone (0.05 mm x 0.25 mm x 0.40 mm),  $C_{20}H_{18}N_4O_2$ , Pbca,  $a=8.7355(7)$  Å,  $b=18.7028(15)$  Å,  $c=20.6100(17)$  Å.

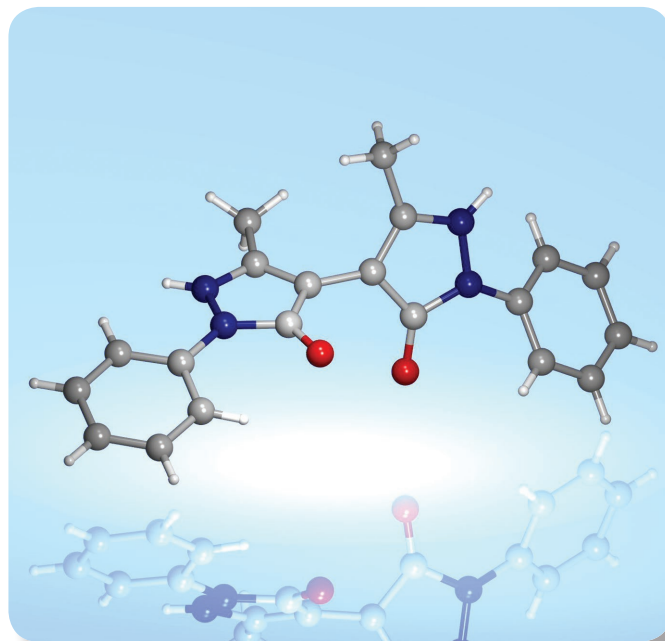
Data were acquired with 30s/0.5° scans for the flat graphite monochromator and 10s/0.5° scans for the TRIUMPH monochromator. Complete, 5-fold redundant data extends to 0.75 Å in both cases and although the exposure time for the TRIUMPH data is only one third, it is of better quality:

	TRIUMPH	Flat Graphite
<b>Data collection time (h)</b>	3.25	8.25
<b>Data all</b>	4253	4239
<b>Data observed, Fo &gt; 4sig(Fo)</b>	2862	2691
<b>Rint</b>	2.23%	2.47%
<b>Rsigma</b>	2.03%	2.31%
<b>R1</b>	3.79%	3.98%

### TRIUMPH Versus Flat Graphite Monochromator



Note: Curves are parallel over a wide range of sample sizes.



Structure of Bispyrazolone

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