



Product Sheet SC-XRD 43

TRIUMPH MONOCHROMATOR

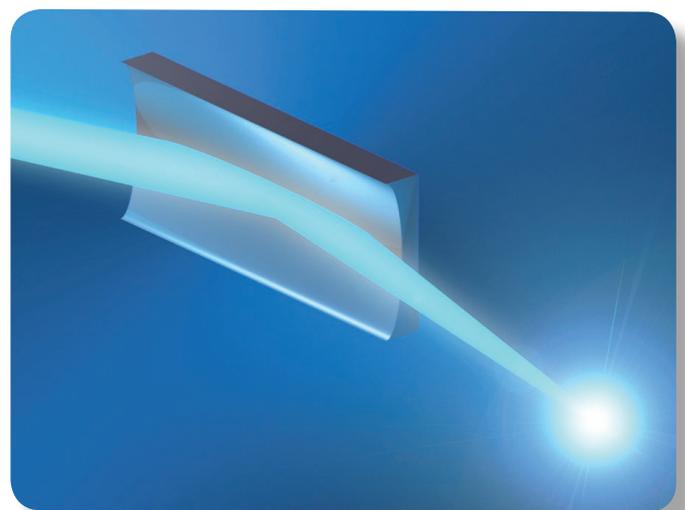
Triple Your Intensity for Mo $K\alpha$

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

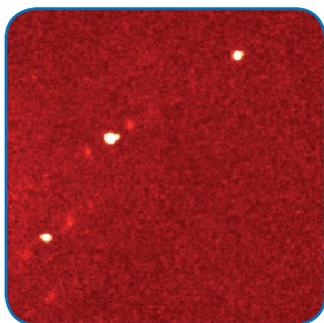


Image using flat graphite monochromator

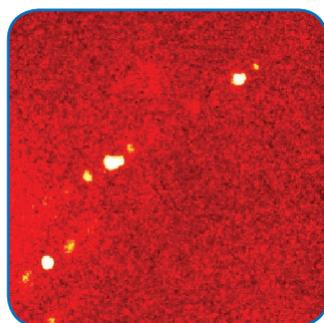


Image using TRIUMPH monochromator

"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*

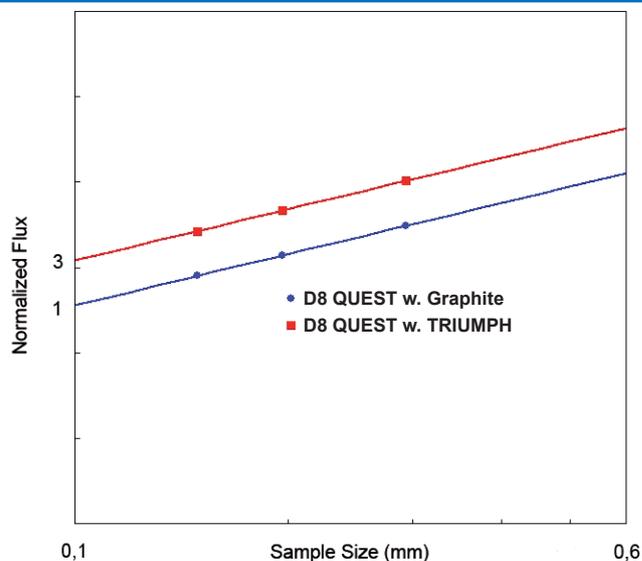
Application

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.

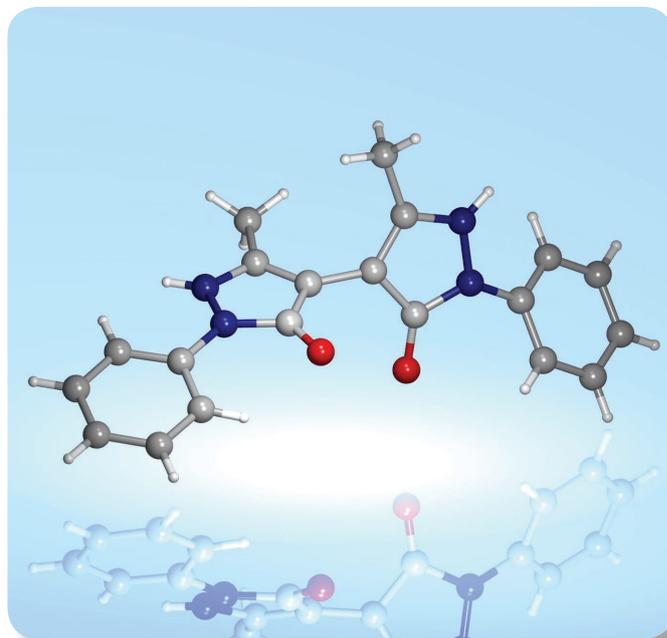
Data were acquired with 30s/0.5° scans for the flat graphite monochromator and 10s/0.5° scans for the TRIUMPH monochromator. Complete, 5-fold redundant data extends to 0.75 Å in both cases and although the exposure time for the TRIUMPH data is only one third, it is of better quality:

	TRIUMPH	Flat Graphite
Data collection time (h)	3.25	8.25
Data all	4253	4239
Data observed, Fo > 4sig(Fo)	2862	2691
Rint	2.23%	2.47%
Rsigma	2.03%	2.31%
R1	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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