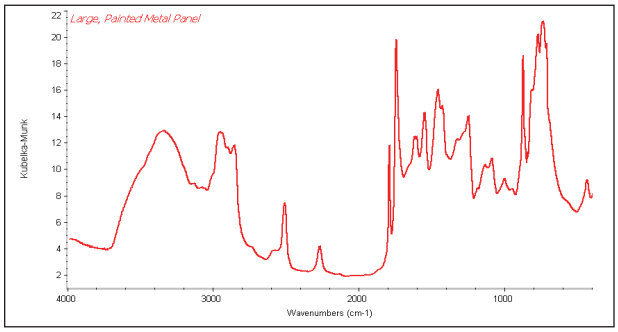
# UpIR –
## *Upward Looking Diffuse Reflectance Accessory*


## FEATURES OF THE UPIR

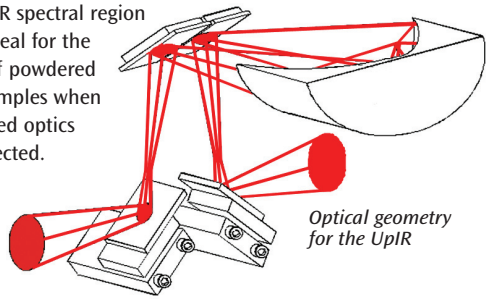
- *Upward looking optics providing fast and easy analysis of samples placed face down on the UpIR sample port*
- *Out-of-compartment design for analysis of large samples*
- *High optical throughput and exceptional signal-to-noise ratio*
- *Analysis of powders, ground solid samples and coatings on metallic surfaces*
- *Pre-aligned, fixed-position optical components for reproducible, high quality data*
- *Micrometer controlled sample stage positioning and focusing*
- *Optional gold-coated optics version for highest performance mid-IR and NIR applications*

The UpIR is an innovative FTIR accessory developed to support a wide range of diffuse reflectance applications. The UpIR is designed as a tall structured sampling accessory and is used by simply placing large, solid samples face down onto the top plate of the accessory. In the case of powdered or small solids, they can be placed into a suitable sampling cup at the top of the UpIR. This design is uniquely suitable for mid-IR analysis of coatings on metallic surfaces of large or small samples. For this application, analysis is rapid and easy because no sample preparation or cleanup is required. Since the sampling area of the UpIR is above the plane of the FTIR instrument, even large samples that do not fit into the sample compartment can be analyzed with this accessory.




*Analysis of a large painted metal panel using the UpIR accessory*

In the NIR spectral region the UpIR is ideal for the QC analysis of powdered and tablet samples when the gold coated optics version is selected.



*Optical geometry for the UpIR*

The accessory is equipped with an upward-looking, high-performance ellipsoidal mirror which minimizes the effect of specular radiation. The sampling stage provides a sampling port with inserts for diffuse reflectance or specular reflectance measurements.

All mirrors, including the ellipsoidal collection mirror, are permanently mounted. The position of the sampling stage is controlled with the adjustable micrometer to achieve the best possible throughput. Spectral analysis involves collecting a background spectrum with the reference mirror in the sampling position. After this step, the sample is simply placed face down onto the sampling port and data collection is initiated.

The gold coated optics version of the UpIR provides highest throughput in the mid-IR spectral region and is recommended for NIR sampling. The UpIR accessory includes a solids sampling plate for flat samples, and a ZnSe windowed sampling cup for powdered or small solids analysis. The accessory is equipped with purge tubes for elimination of $CO_2$ and water interferences from infrared spectra.

For NIR sampling of solids, powders or tablet samples, the sapphire windowed sampling cup is recommended. In the NIR spectral region samples can be analyzed while contained in a glass vial. For this measurement, the optional 21 mm glass vial holder is recommended.

## ORDERING INFORMATION

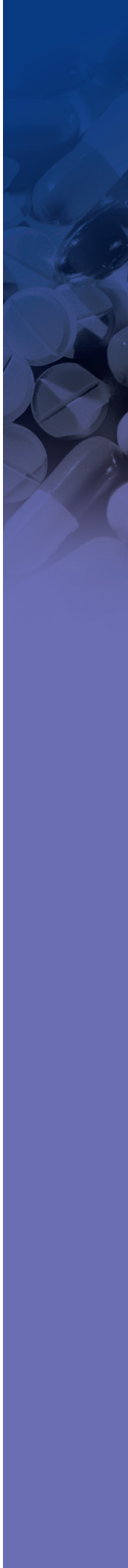
| PART NUMBER | DESCRIPTION |
|---|---|
| 044-10XX | UpIR – Out-of-compartment Diffuse Reflectance Accessory *Includes solids sampling insert, powders sampling insert with ZnSe window, gold mirror, purge tubes, purge kit and spectrometer base mount.* |
| 044-60XX | UpIR – Out-of-compartment Diffuse Reflectance Accessory with Gold-Coated Optics *Includes solids sampling insert, powders sampling insert with ZnSe window, gold mirror, purge tubes, purge kit and spectrometer base mount.* |

*Notes: Replace XX in part number with code for your spectrometer model found on the last page of this catalog.*

### *UpIR Options*

| PART NUMBER | DESCRIPTION |
|---|---|
| 044-3030 | Solids Sampling Insert |
| 044-3040 | Powders Sampling Insert |
| 044-3010 | 21 mm Glass Vial Holder |
| 044-3020 | Sample Vials with Threaded Caps, 21 mm x 70 mm, (200 per package) |
| 160-1155 | 25 x 2 mm ZnSe Window |
| 160-1307 | 25 x 2 mm Ge Window |
| 160-1201 | 25 x 2 mm AMTIR Window |
| 160-5000 | 25 x 2 mm Sapphire Window |

*Notes: Solids and Powders Sampling Inserts do not include a window – please make a selection from the list above.*



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