## PQ Protocol

Company:
Operator:
Instrument Type:
Optics Configuration:
Accessory:
Instrument Serial Number:
Instrument Firmw are Version:
OPUS/DB Version:
Overall Test Result
Test expires:
Test Date/Time:
Test Spectra Path:
Comment:

Moscow State University of
Default
Senterra Microscope 532 nm Grating 1200
Microscope w ith: 532 nm, Grating 1200, CCD
None
Result
Result
20090227 / 6.5.9
PASS
2013/01/18 18:59:16
2012/01/18 18:59:16
C:IProgram Files\OPUS_65IValidation\Data\20120118\185916

| Wavelength Accuracy Test |  |  |  |
| :---: | :---: | :---: | :---: |
| 1. Peak specified: | 391.5 cm -1 | 1. Peak measured: | $391.9 \mathrm{~cm}-1$ |
| Max. Deviation Limit: | $1.00 \mathrm{~cm}-1$ | Measured Deviation: | $0.37 \mathrm{~cm}-1$ |
| 2. Peak specified: | $857.9 \mathrm{~cm}-1$ | 2. Peak measured: | $858.3 \mathrm{~cm}-1$ |
| Max. Deviation Limit: | $1.00 \mathrm{~cm}-1$ | Measured Deviation: | $0.44 \mathrm{~cm}-1$ |
| 3. Peak specified: | $1168.5 \mathrm{~cm}-1$ | 3. Peak measured: | $1168.8 \mathrm{~cm}-1$ |
| Max. Deviation Limit: | $0.50 \mathrm{~cm}-1$ | Measured Deviation: | $0.27 \mathrm{~cm}-1$ |
| 4. Peak specified: | $1323.9 \mathrm{~cm}-1$ | 4. Peak measured: | $1324.0 \mathrm{~cm}-1$ |
| Max. Deviation Limit: | $1.00 \mathrm{~cm}-1$ | Measured Deviation: | $0.13 \mathrm{~cm}-1$ |
| 5. Peak specified: | $1648.4 \mathrm{~cm}-1$ | 5. Peak measured: | $1648.5 \mathrm{~cm}-1$ |
| Max. Deviation Limit: | $1.00 \mathrm{~cm}-1$ | Measured Deviation: | $0.11 \mathrm{~cm}-1$ |
| 6. Peak specified: | 2931.1 cm -1 | 6. Peak measured: | 2931.2 cm -1 |
| Max. Deviation Limit: | $1.00 \mathrm{~cm}-1$ | Measured Deviation: | $0.06 \mathrm{~cm}-1$ |
| Spectral Resolution Test |  |  |  |
| Peak specified: | 1085.0 cm -1 |  |  |
| Resolution Limit: | $4.50 \mathrm{~cm}-1$ | Measured Resolution: | $2.73 \mathrm{~cm}-1$ |
| Spectral Resolution Neon Test |  |  |  |
| Peak specified: | 2402.0 cm -1 |  |  |
| Resolution Limit: | $3.00 \mathrm{~cm}-1$ | Measured Resolution: | $2.35 \mathrm{~cm}-1$ |
| Throughput Test |  |  |  |
| Throughput minimum | 3500 | Throughput measured: | 13158 |

1. Peak specified:

Max. Deviation Limit:
2. Peak specified:

Max. Deviation Limit:
3. Peak specified:

Max. Deviation Limit:
4. Peak specified:

Max. Deviation Limit:
5. Peak specified:

Max. Deviation Limit:
620.9 cm -1
10.000 \% 1001.4 cm-1 10.000 \%
$1602.3 \mathrm{~cm}-1$ 10.000 \% 2904.5 cm -1 10.000 \%
3054.3 cm -1 10.000 \%

1. Peak measured:
$621.2 \mathrm{~cm}-1$
Measured Deviation:
5.787 \%
2. Peak measured:

Measured Deviation:
3. Peak measured:

Measured Deviation:
4. Peak measured:

Measured Deviation:
5. Peak measured: Measured Deviation:
$1001.6 \mathrm{~cm}-1$
0.000 \%
$1602.7 \mathrm{~cm}-1$
6.433 \%
2906.1 cm -1
0.638 \%
$3055.5 \mathrm{~cm}-1$
1.264 \%

## Overall Test Result = PASS

