



IARPA MORGOTH'S CROWN: Optical Constant Measurement References

Contents

IARPA MORGOTH'S CROWN: Optical Constant Measurement References	1
Optical Constant Measurement Methods	1

Optical Constant Measurement Methods

1. Blake, T. A., Johnson, T. J., Tonkyn, R. G., Forland, B. M., Myers, T. L., Brauer, C. S., Su, Y.-F. 2014. "Quantitative total and diffuse reflectance laboratory measurements for remote, standoff, and point sensing." In *Proceedings of the SPIE: Chemical Biological, Radiological, Nuclear, and Explosives (CBRNE) Sensing XV, May 5, 2014, Baltimore, Maryland*. 9073: Paper No. 907303. SPIE, Bellingham, WA DOI: 10.1117/12.2054116 <http://dx.doi.org/10.1117/12.2054116>
2. L.M. Hanssen, K.A. Snail. 2002. "Integrating Spheres for Mid- and Near-infrared Reflection Spectroscopy." In *Handbook of Vibrational Spectroscopy*, eds. J. M. Chalmers and P. R. Griffiths, Wiley & Sons Ltd., Chichester, UK. DOI: 10.1002/0470027320.s2405 <http://dx.doi.org/10.1002/0470027320.s2405>
3. McPhedran, R. C., Botten, L. C., McKenzie, D. R., Netterfield, R. P. 1984. "Unambiguous determination of optical constants of absorbing films by reflectance and transmittance measurements." *Applied Optics*, 23, (8), 1197-1205. DOI: 10.1364/AO.23.001197 <https://doi.org/10.1364/AO.23.001197>
4. Hawranek JP, P Neelakantan, RP Young, and RN Jones. 1976. "The Control of Errors in I.R. Spectrophotometry – III. Transmission Measurements Using Thin Cells." *Spectrochimica Acta A* 32(1):75-84. DOI: 10.1016/0584-8539(76)80054-2 [https://doi.org/10.1016/0584-8539\(76\)80054-2](https://doi.org/10.1016/0584-8539(76)80054-2)
5. Hawranek JP, P Neelakantan, RP Young, and RN Jones. 1976. "The Control of Errors in I.R. Spectrophotometry – IV. Corrections for Dispersion Distortion and the Evaluation of Both Optical Constants." *Spectrochimica Acta A* 32(1):85-96. DOI: 10.1016/0584-8539(76)80055-4 [https://doi.org/10.1016/0584-8539\(76\)80055-4](https://doi.org/10.1016/0584-8539(76)80055-4)
6. Hawranek JP and RN Jones. 1976. "The Control of Errors in I.R. Spectrophotometry – V. Assessment of Errors in the Evaluation of Optical Constants by Transmission Measurements on Thin Films." *Spectrochimica Acta A* 32(1):99-109. DOI: 10.1016/0584-8539(76)80056-6 [https://doi.org/10.1016/0584-8539\(76\)80056-6](https://doi.org/10.1016/0584-8539(76)80056-6)
7. L Russell, E. E., Bell, E. E. 1967. "Measurement of the Optical Constants of Crystal Quartz in the Far Infrared with the Asymmetric Fourier-Transform Method." *Journal of the Optical Society of America*, 57, (3), 341-348. DOI: 10.1364/JOSA.57.000341 <https://doi.org/10.1364/JOSA.57.000341>

8. J.E. Bertie. 1997. "Quantitative Infrared Intensities of Neat Liquids: Their Measurement and Use." *Microchimica Acta Supplement*, 14:15-22. DOI: 10.1007/978-3-7091-6840-0_3 http://dx.doi.org/10.1007/978-3-7091-6840-0_3
9. J.E. Bertie, SL Zhang, C.D. Keefe. 1995. "Measurement and Use of Absolute Absorption Intensities of Neat Liquids." *Vibrational Spectroscopy*, 8(2): 215-229. DOI: 10.1016/0924-2031(94)00038-I [https://doi.org/10.1016/0924-2031\(94\)00038-I](https://doi.org/10.1016/0924-2031(94)00038-I)
10. J.E. Bertie, H.H. Eysel. 1985. "Infrared Intensities of Liquids I: Determination of Infrared Optical and Dielectric Constants by FT-IR Using the CIRCLE ATR Cell." *Applied Spectroscopy*, 39: 392-401. DOI: 10.1366/0003702854248575 <http://dx.doi.org/10.1366/0003702854248575>
11. J.E. Bertie, S.L. Zhang, C.D. Keefe. 1994. "Infrared Intensities of Liquids XVI: Accurate Determination of Molecular Band Intensities from Infrared Refractive Index and Dielectric Constant Spectra." *Journal of Molecular Structure*, 324: 157-176. DOI: 10.1016/0022-2860(94)08237-5 [https://doi.org/10.1016/0022-2860\(94\)08237-5](https://doi.org/10.1016/0022-2860(94)08237-5)
12. A. Macleod, C. Clark. 2012. *Optical Coating Design with the Essential Macleod*. Thin Film Center, Inc., Tucson, Arizona. <https://www.thinfilmcenter.com/book.php>
13. ATAGO. 2017. Multi-Wavelength Abbe Refractometer DR-M2/1550 (Cat. No. 1412), DR-M4/1550 (Cat. No. 1415) *Instruction Manual*. ATAGO Co., Ltd., Tokyo, Japan. (Online Product Catalog). http://www.atago.net/USA/products_multi.php