Charlie Nitschelm

ME 561 Lab 2

X-ray radiation and wavelength: 1.542 Angstroms

Starting angle: 30 degrees

End Angle: 80 degrees

Goniometer speed: 2 degrees/minute

kV: 40 mA: 30 kW: 1200

Aluminum and an FCC Crystal Structure

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2θ | Sinθ1/sinθ2 | (hkl) | dhkl | a = d\*√(h2+k2+l2) |
| 38.465 | 1 | (1,1,1) | .2337 | .405867 |
| 44.720 | .8658 | (2,0,0) | .2024 | .40481 |
| 65.105 | .6122 | (2,2,0) | .1431 | .40474 |
| 78.235 | .5221 | (1,1,3) | .122 | .40463 |

Nickel Oxide and an FCC Crystal Structure

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2θ | (hkl) | dhkl | a | (Cos2(θ)/sin(θ)) + (cos2(θ)/θ) |
| 43.532 | (1,1,1) | .2414 | .4180 | 4.596 |
| 50.645 | (2,0,0) | .2093 | .4185 | 3.755 |
| 74.447 | (2,2,0) | .1480 | .4185 | 2.024 |
| 90.405 | (1,1,3) | .1258 | .4172 | 1.329 |
| 95.707 | (2,2,2) | .1210 | .4182 | 1.146 |

