

Figure 8.1: XRD spectrum of zircon

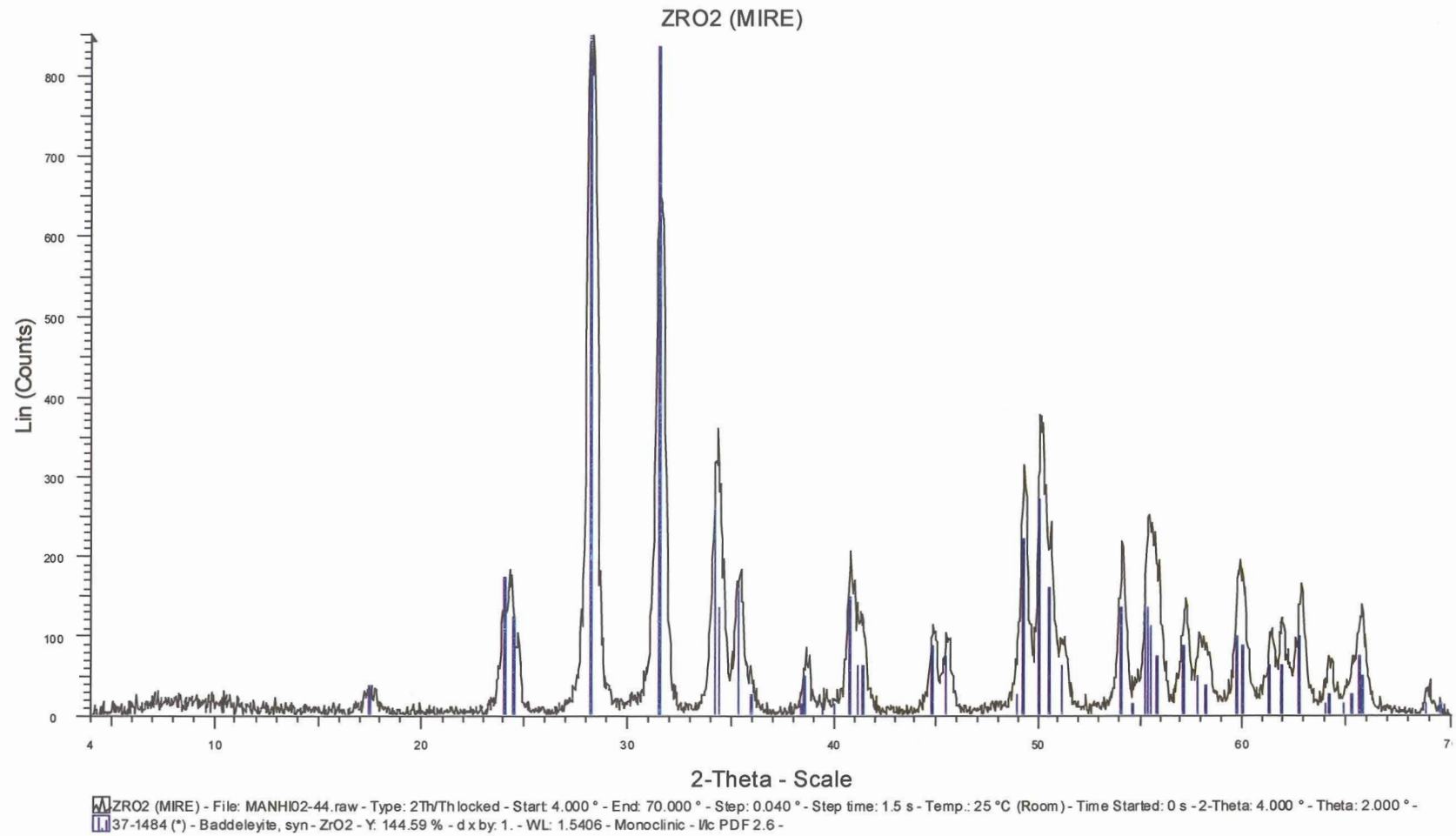
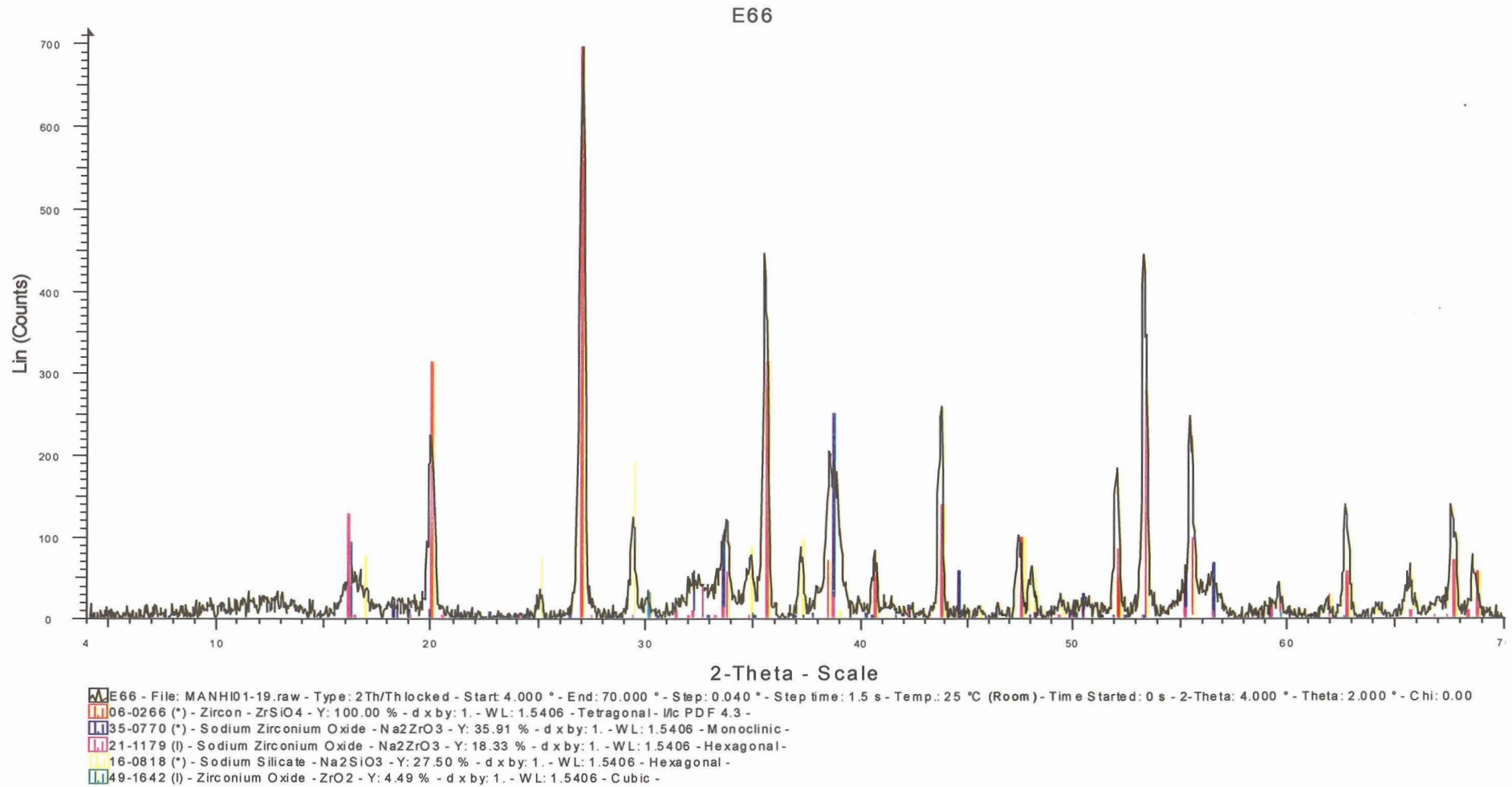


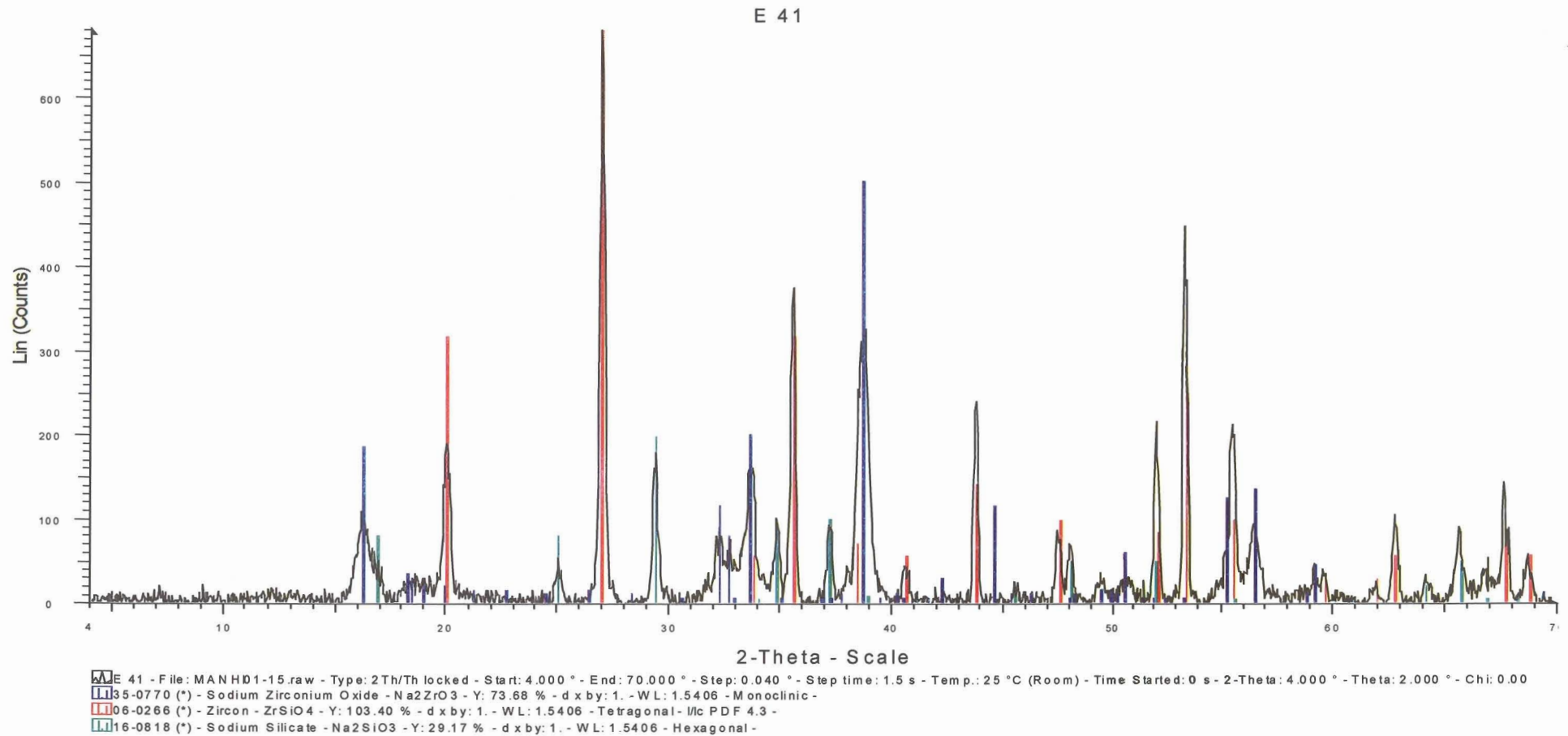
Figure 8.2: XRD-spectrum of pure zirconia.

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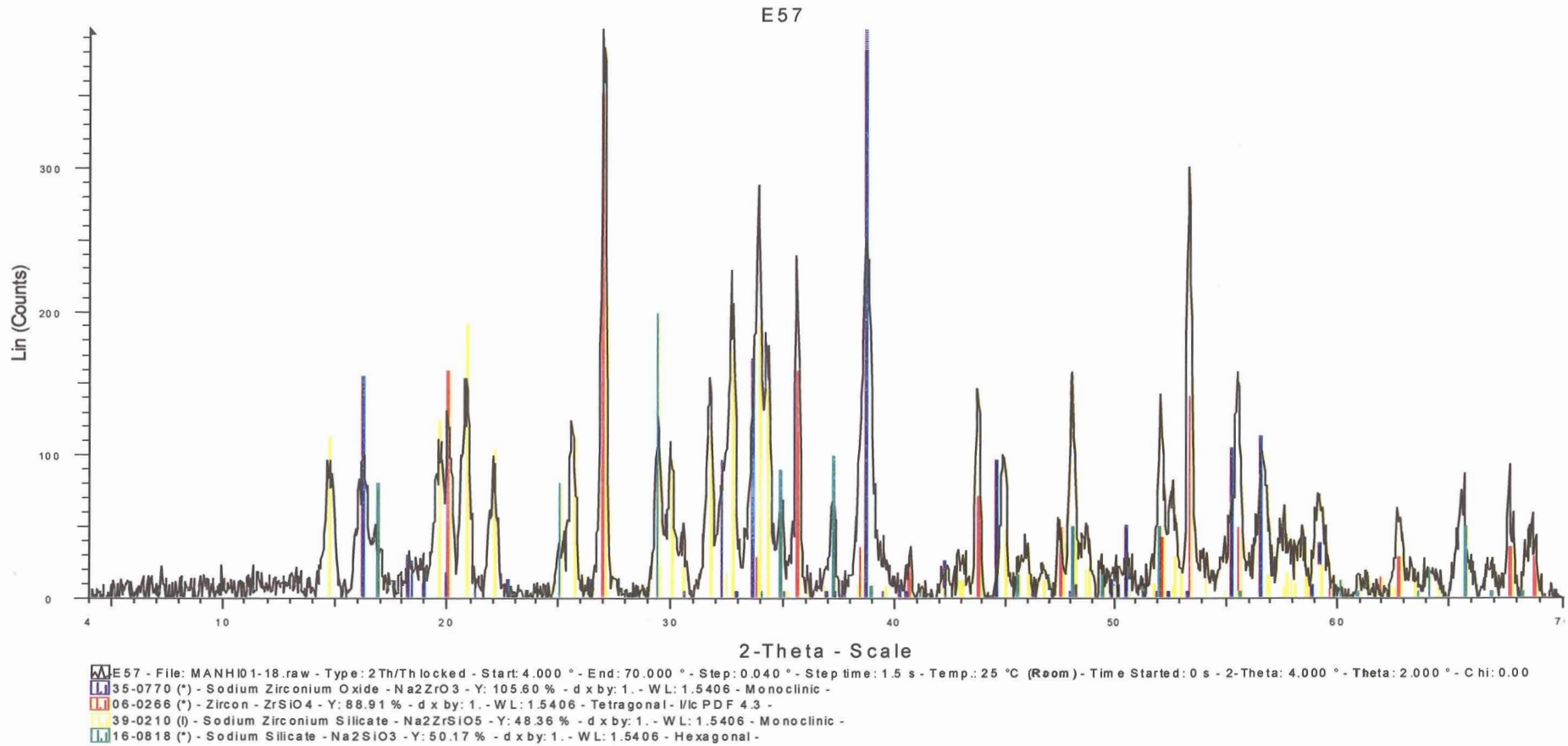
**Spectrum 3:** XRD spectrum of zircon alkali fused. One mole of zircon  $d \approx 9.0 \mu\text{m}$  was fused with two moles of sodium hydroxide at  $600^\circ\text{C}$  for 336 hours with intermediate milling after every 24 hours.

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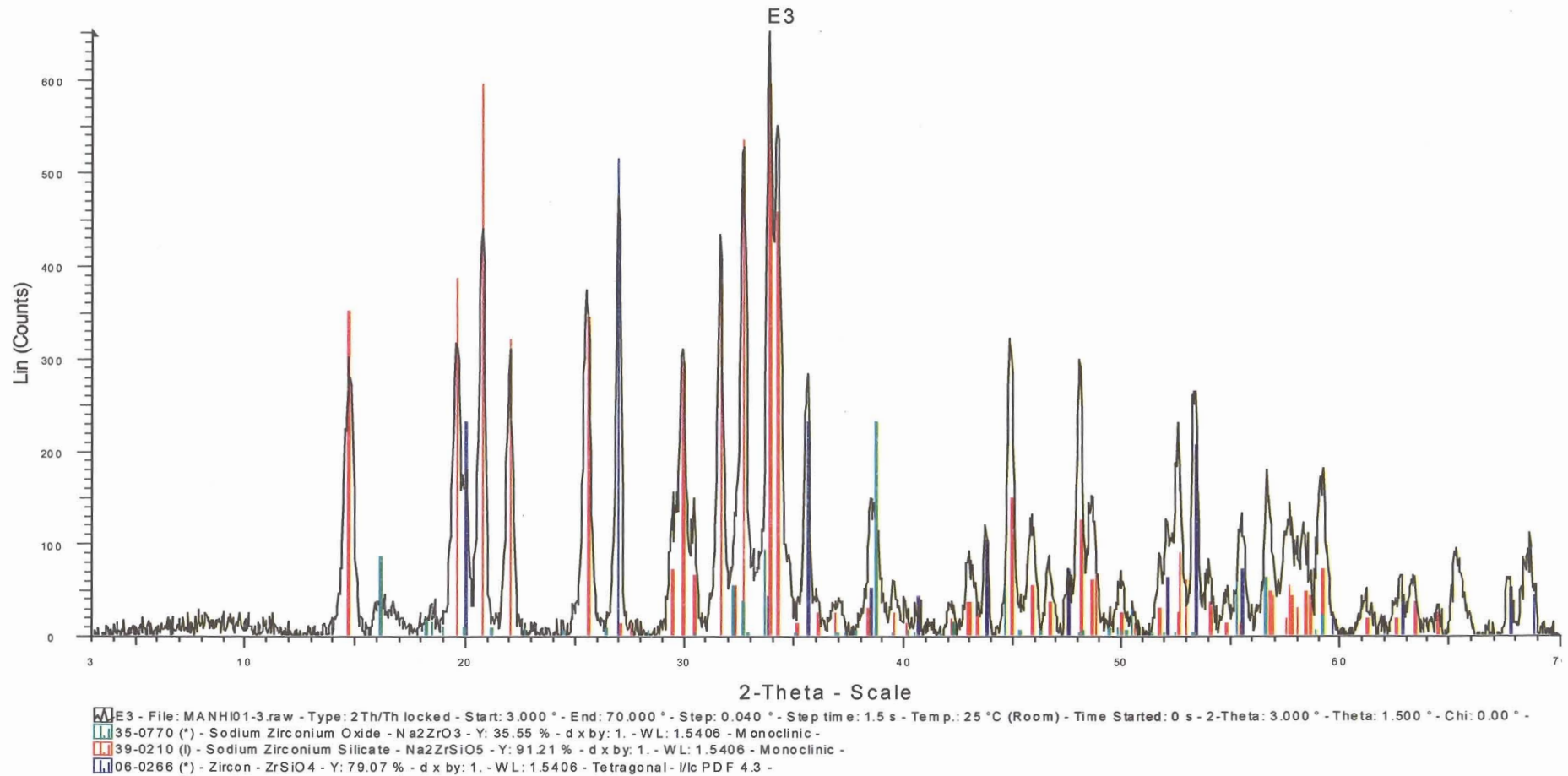
**Spectrum 4:** XRD spectrum of zircon alkali fused. A mole of zircon d  $\approx$  9.0  $\mu$ m was fused with two moles of sodium hydroxide at 650°C for 336 hours with intermediate milling after every 24 hours.

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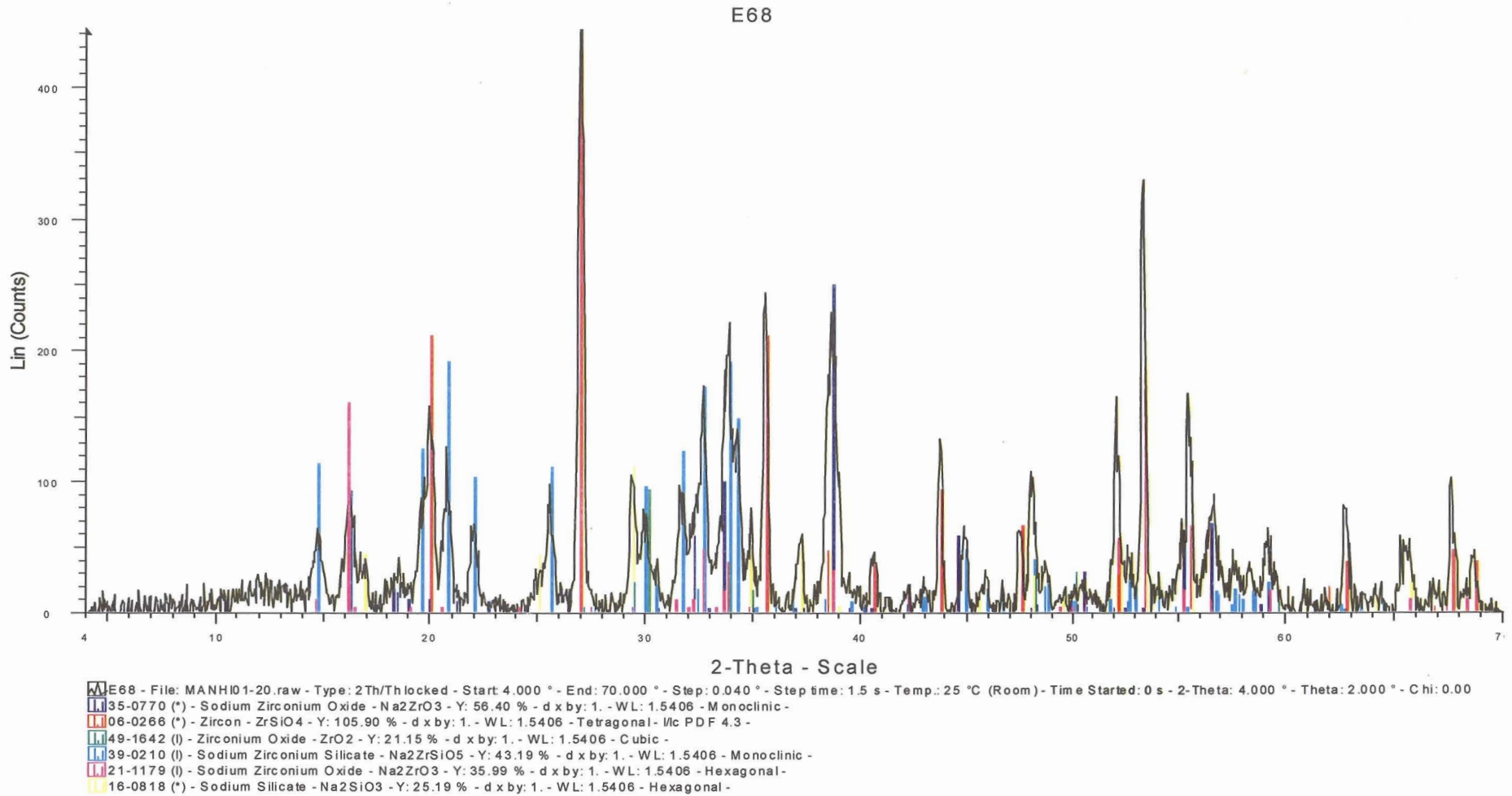
**Spectrum 5:** XRD spectrum of zircon alkali fused. A mole of zircon  $d \approx 9.0 \mu\text{m}$  was fused with two moles of sodium hydroxide at  $700^\circ\text{C}$  for 336 hours with intermediate milling after every 24 hours.

Appendix A



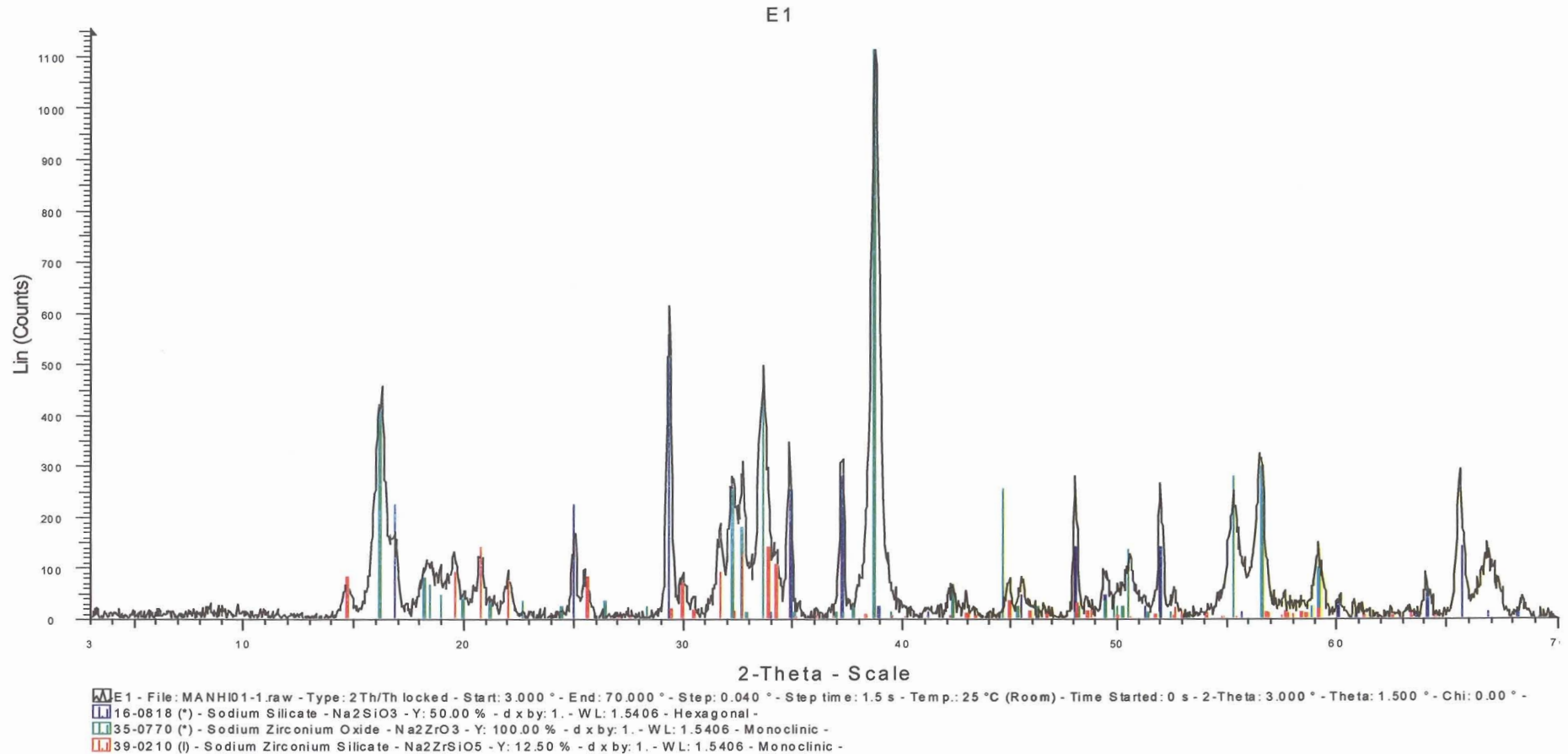
**Spectrum 6:** XRD spectrum of zircon alkali fused. A mole of zircon  $d \approx 9.0 \mu\text{m}$  was fused with one mole of sodium hydroxide at  $750^\circ\text{C}$  for 336 hours with intermediate milling after every 24 hours.

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**Spectrum 7:** XRD spectrum of zircon alkali fused. A mole of zircon  $d \approx 9.0 \mu\text{m}$  was fused with two moles of sodium hydroxide at  $750^\circ\text{C}$  for 336 hours with intermediate milling after every 24 hours.

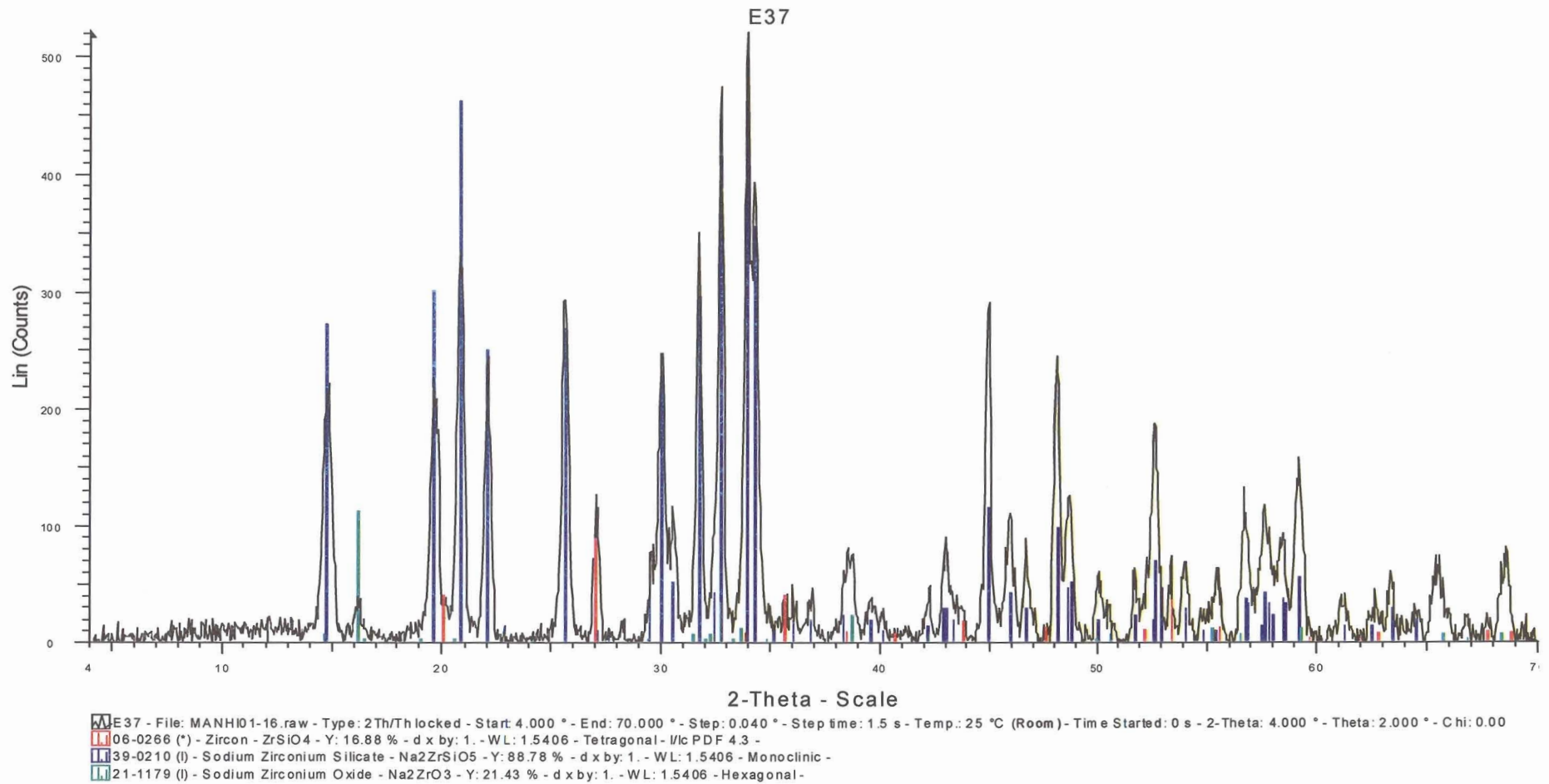
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**Spectrum 8:** XRD spectrum of zircon alkali fused. A mole of zircon  $d \approx 9.0 \mu\text{m}$  was fused with four moles of sodium hydroxide at  $750^\circ\text{C}$  for 336 hours with intermediate milling after every 24 hours.

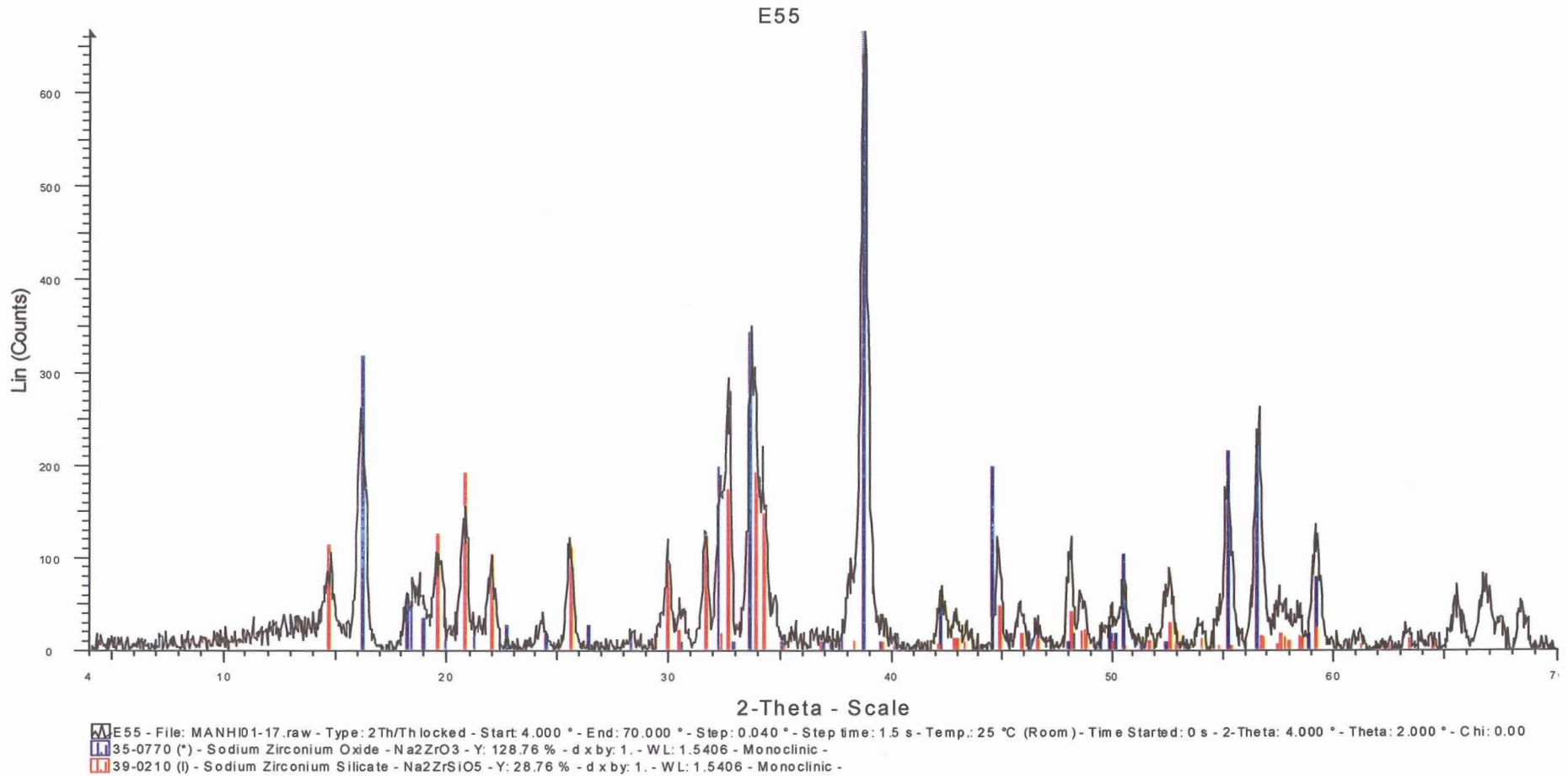


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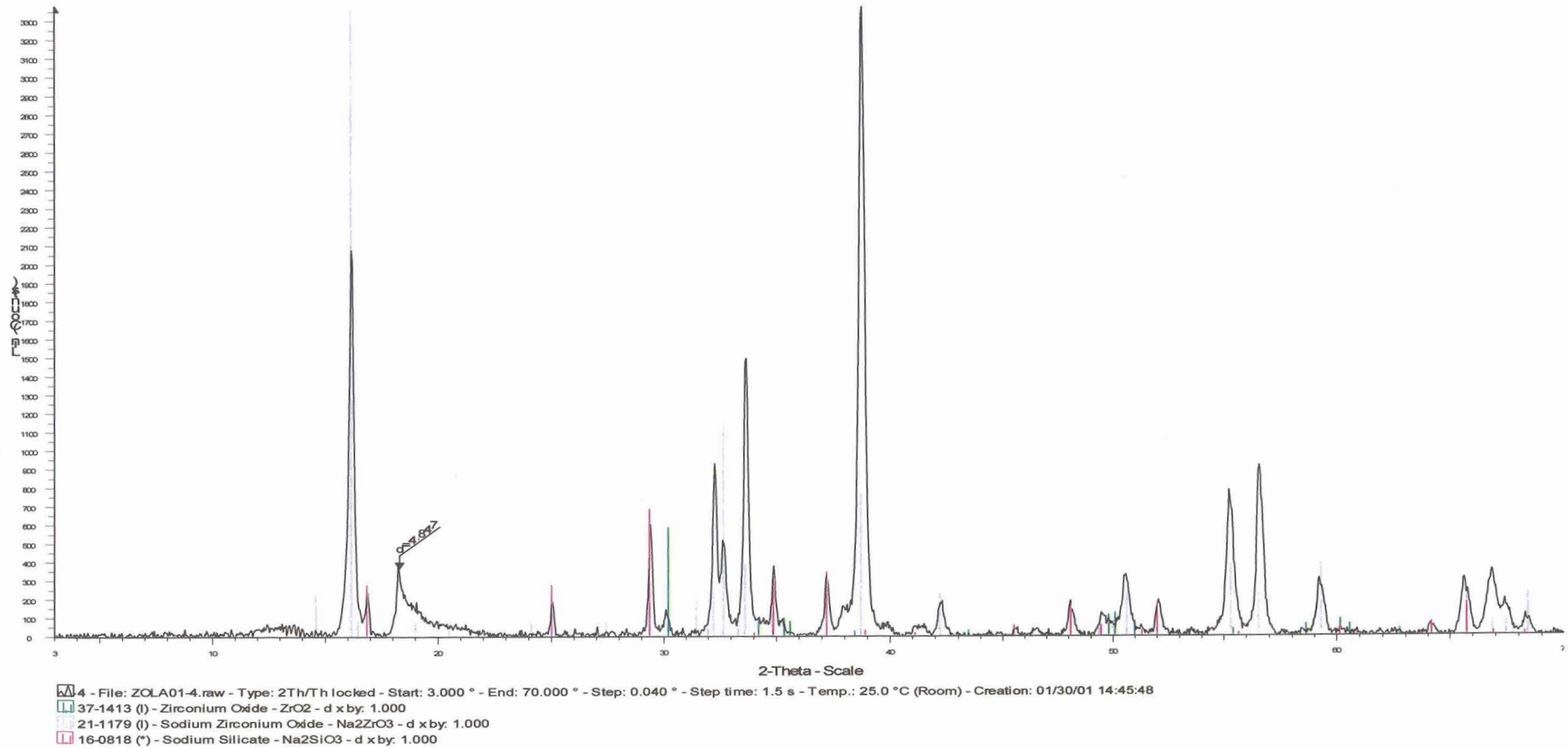
**Spectrum 9:** XRD spectrum of zircon alkali fused. A mole of zircon  $d \approx 9.0 \mu\text{m}$  was fused with two moles of sodium hydroxide at  $850^\circ\text{C}$  for 336 hours with intermediate milling every 24 hours.

Appendix A



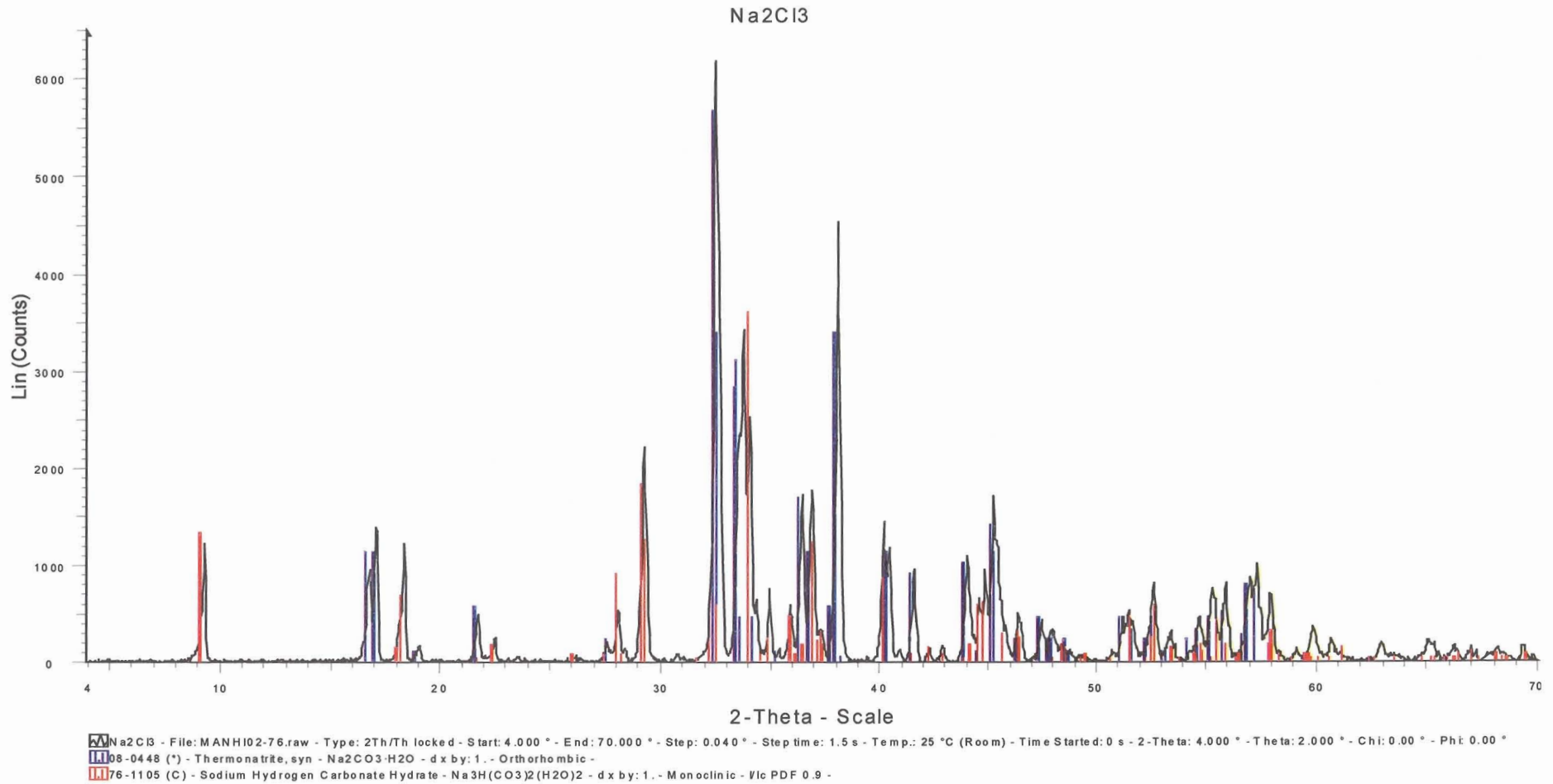
**Spectrum 10:** XRD spectrum of zircon alkali fused. A mole of zircon  $d \approx 9.0 \mu\text{m}$  was fused with four moles of sodium hydroxide at  $850^\circ\text{C}$  for 336 hours with intermediate milling every 24 hours.

Appendix A



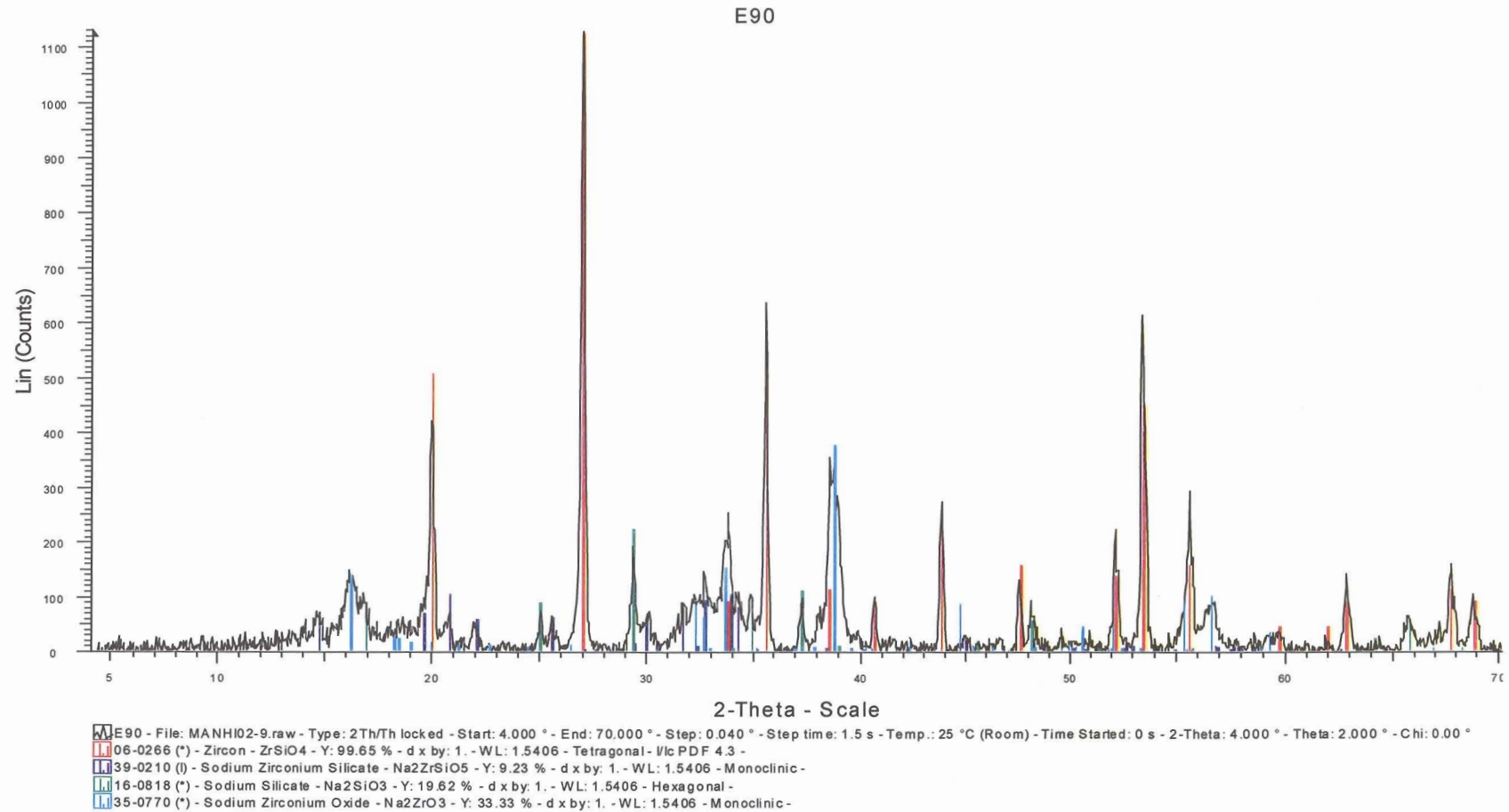
**Spectrum 11:** XRD spectrum of zircon alkali fused. A mole of zircon  $d \approx 9.0 \mu\text{m}$  was fused with six moles of sodium hydroxide at  $850^\circ\text{C}$  for 336 hours with intermediate milling every 24 hours [16].

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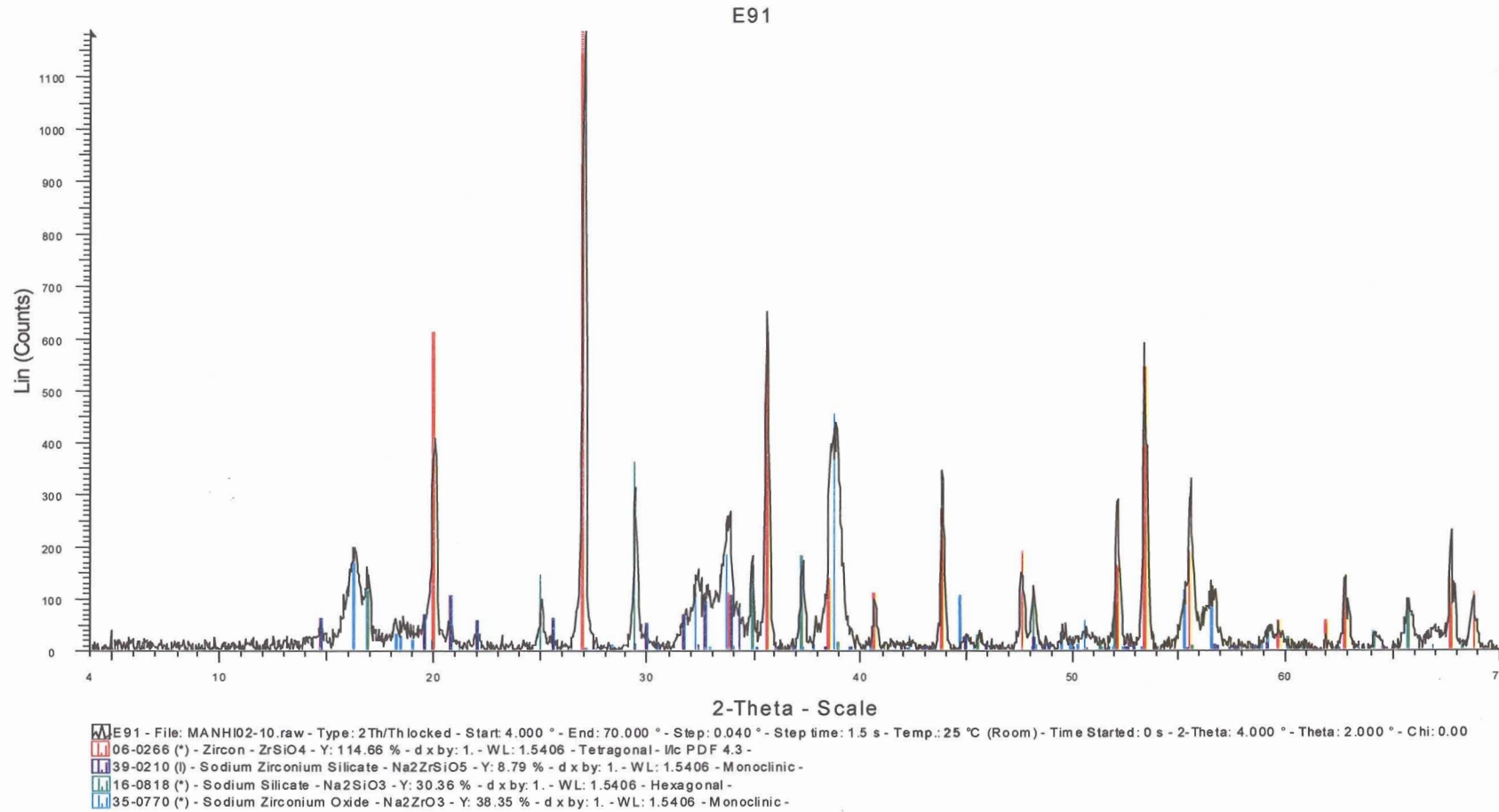
**Spectrum 12:** XRD spectrum of sodium carbonate.

Appendix A



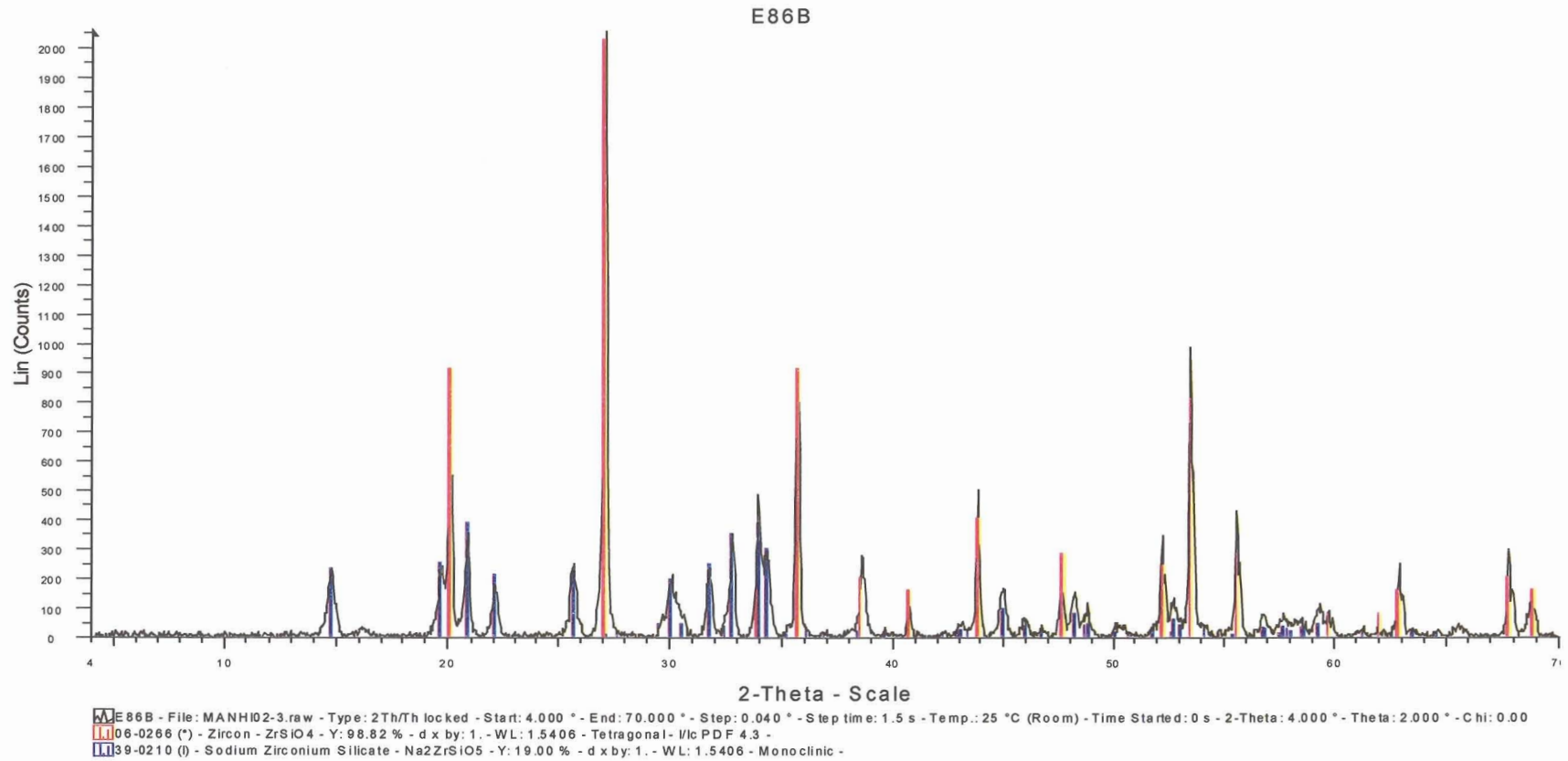
**Spectrum 13:** XRD spectrum of zircon alkali fused. A mole of zircon  $d \approx 9.0 \mu\text{m}$  was fused with two moles of sodium hydroxide at 850°C for one hour without intermediate milling.

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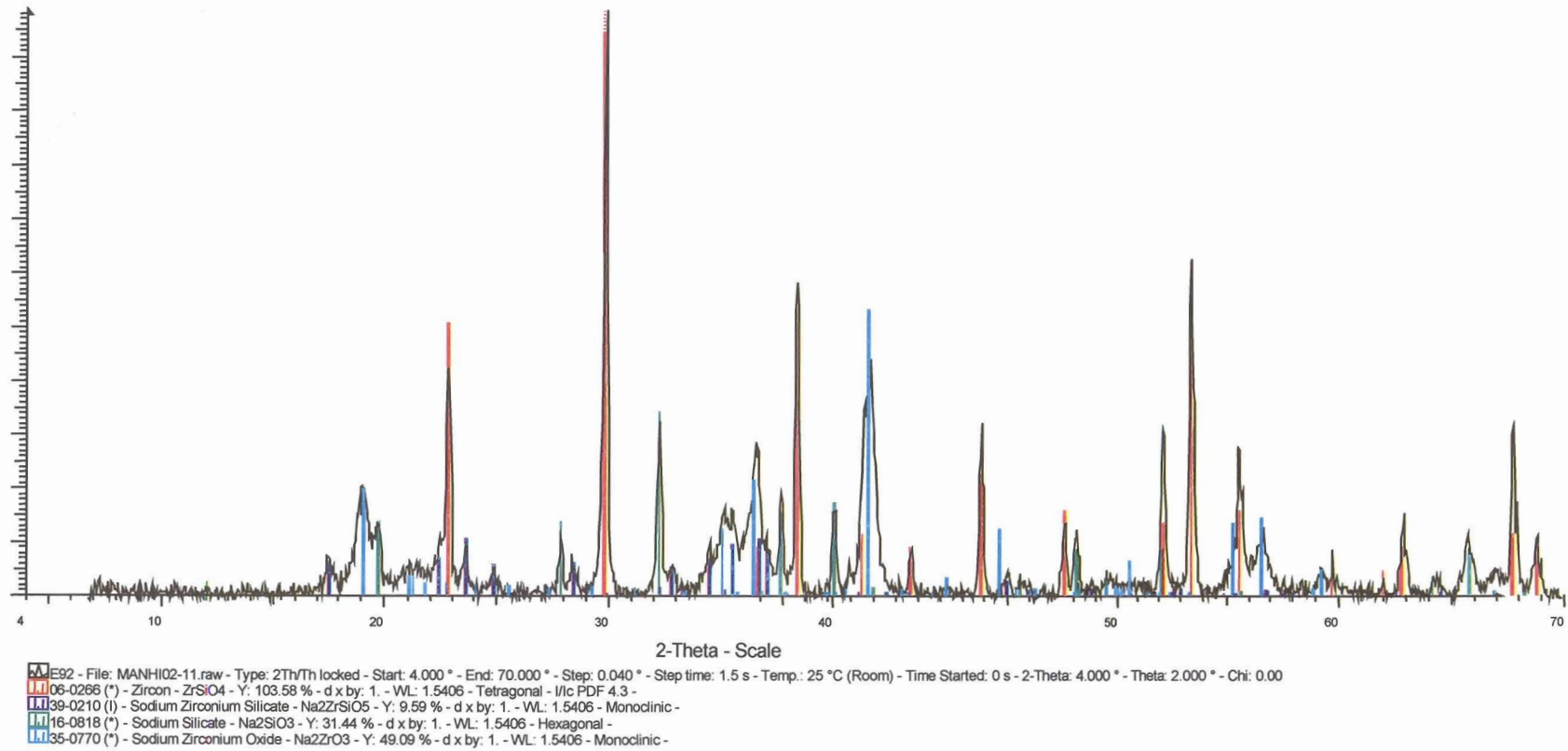
**Spectrum 14:** XRD spectrum of zircon alkali fused. A mole of zircon  $d \approx 9.0 \mu\text{m}$  was fused with two moles of sodium hydroxide at  $850^\circ\text{C}$  for one hour with intermediate milling.

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**Spectrum 15:** XRD spectrum of zircon alkali fused. A mole of zircon  $d \approx 9.0 \mu\text{m}$  was fused with one mole of sodium hydroxide at 850°C for 48 hours with intermediate milling.

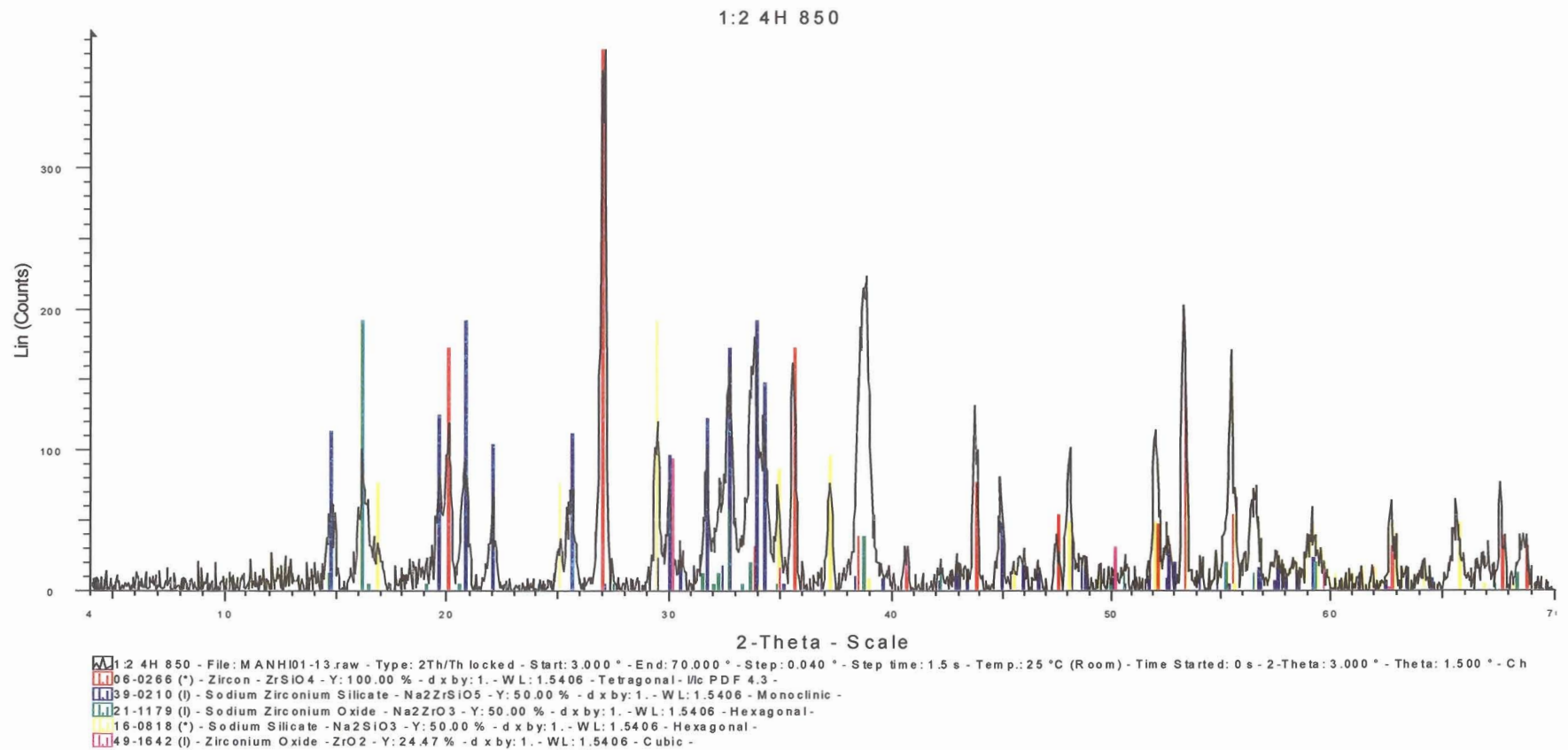
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**Spectrum 16:** XRD spectrum of zircon alkali fused. A mole of zircon  $d \approx 9.0 \mu\text{m}$  was fused with two moles of sodium hydroxide at  $850^\circ\text{C}$  for two hours with intermediate milling at one hour.



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**Spectrum 17:** XRD spectrum of zircon alkali fused. A mole of zircon  $d \approx 9.0 \mu\text{m}$  was fused with two moles of sodium hydroxide at  $850^\circ\text{C}$  for four hours with intermediate milling at two hours.