

## **Supplementary Material**

### **Discreditation of diomignite and its petrologic implications**

**Alan J. Anderson**

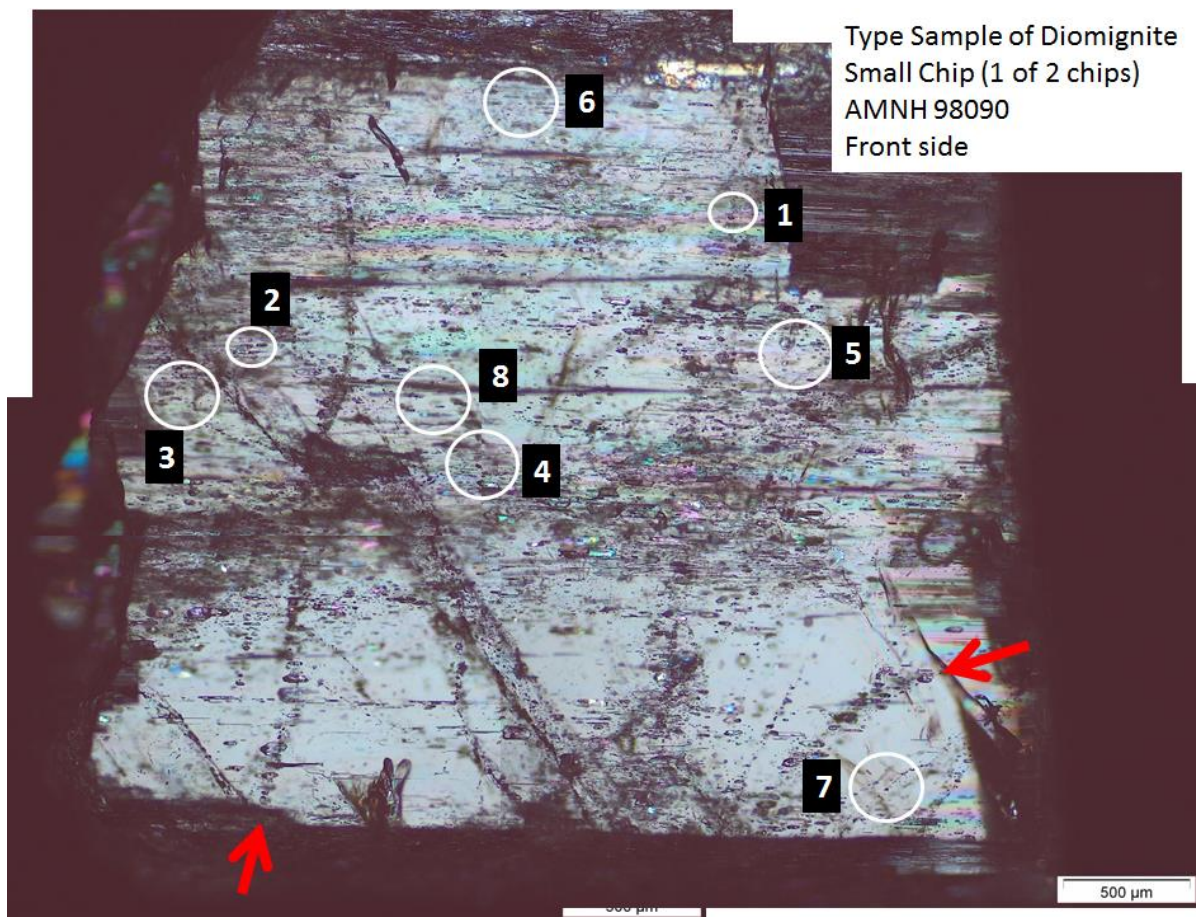
Department of Earth Sciences, St. Francis Xavier University, Antigonish, Nova Scotia,  
B2G 2W5 Canada

The supplemental material show 134 Raman spectra collected from daughter minerals in 30 unopened spodumene-hosted fluid inclusions in the type sample of diomignite (AMNH 98090). The spots from where each Raman spectrum was collected are labeled with a letter on photographs of each fluid inclusion. The letters on the right side of each spectrum correspond to letters on the adjacent photograph.

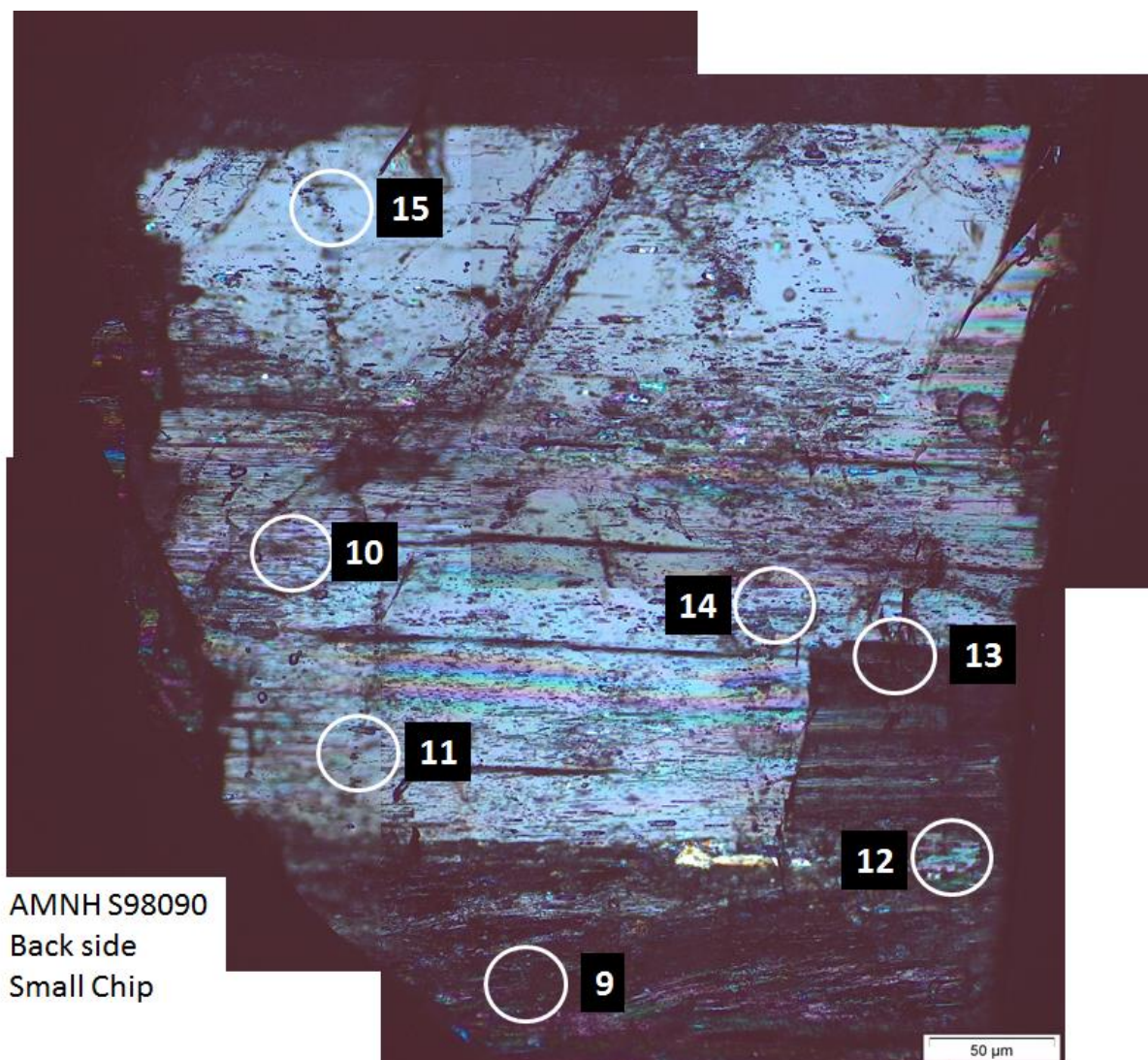
(z) Designates Raman peaks attributed to zabuyelite daughter crystals.

(q) Designates Raman peaks attributed to quartz daughter crystals.

All other peaks in the spectra are from the spodumene host, except for a peak attributed to cookeite at  $266\text{ cm}^{-1}$ . The cookeite shows an OH stretching peak at about  $3638\text{ cm}^{-1}$  not seen in the displayed spectral range of 0 to  $1500\text{ cm}^{-1}$ .



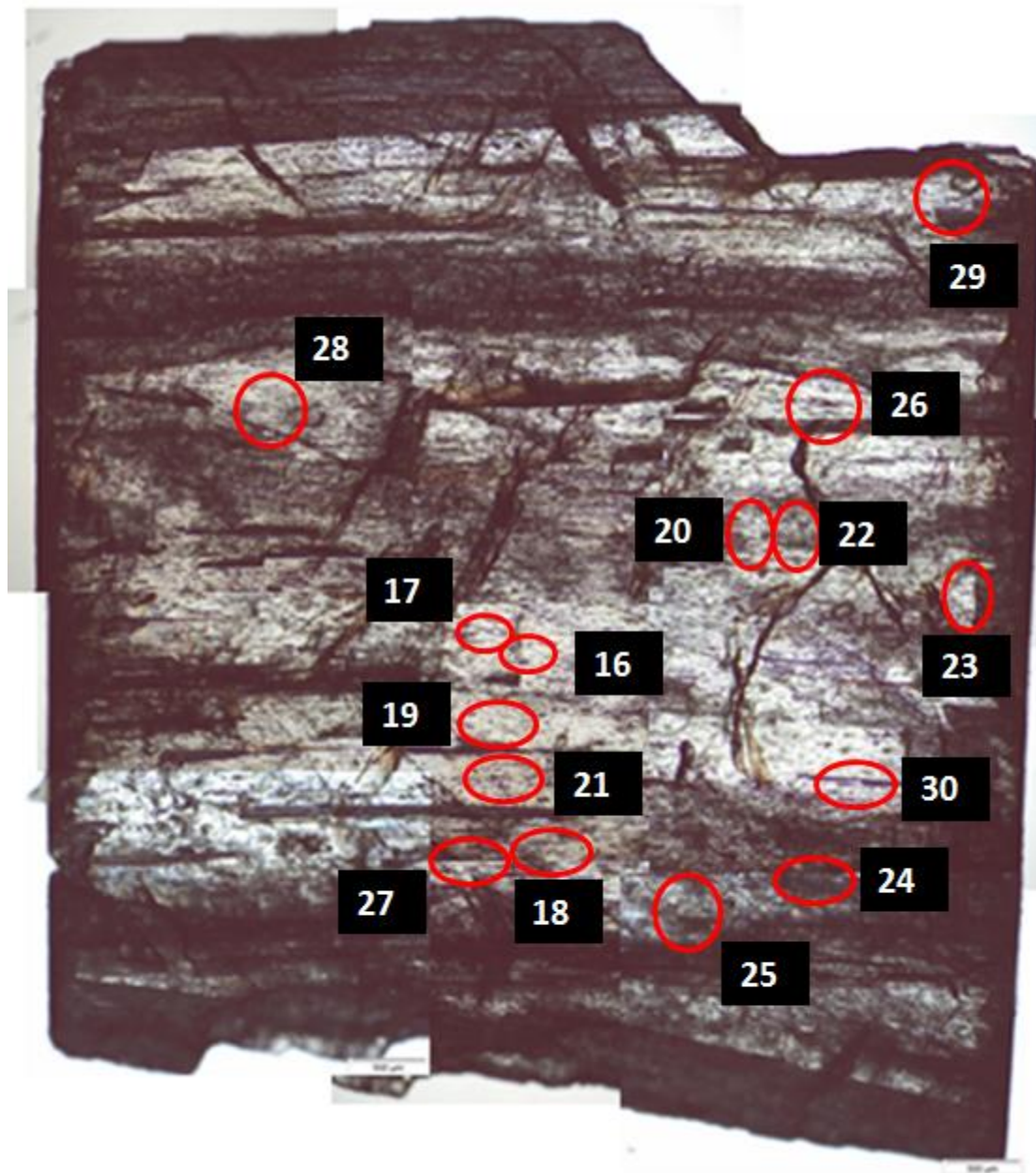
Photograph of one side of the small polished chip of spodumene showing the location of the studied fluid inclusions (S98090-1 to S98090-8). The red arrows show healed microfractures in the spodumene wafer that are decorated with crystal-rich fluid inclusions.



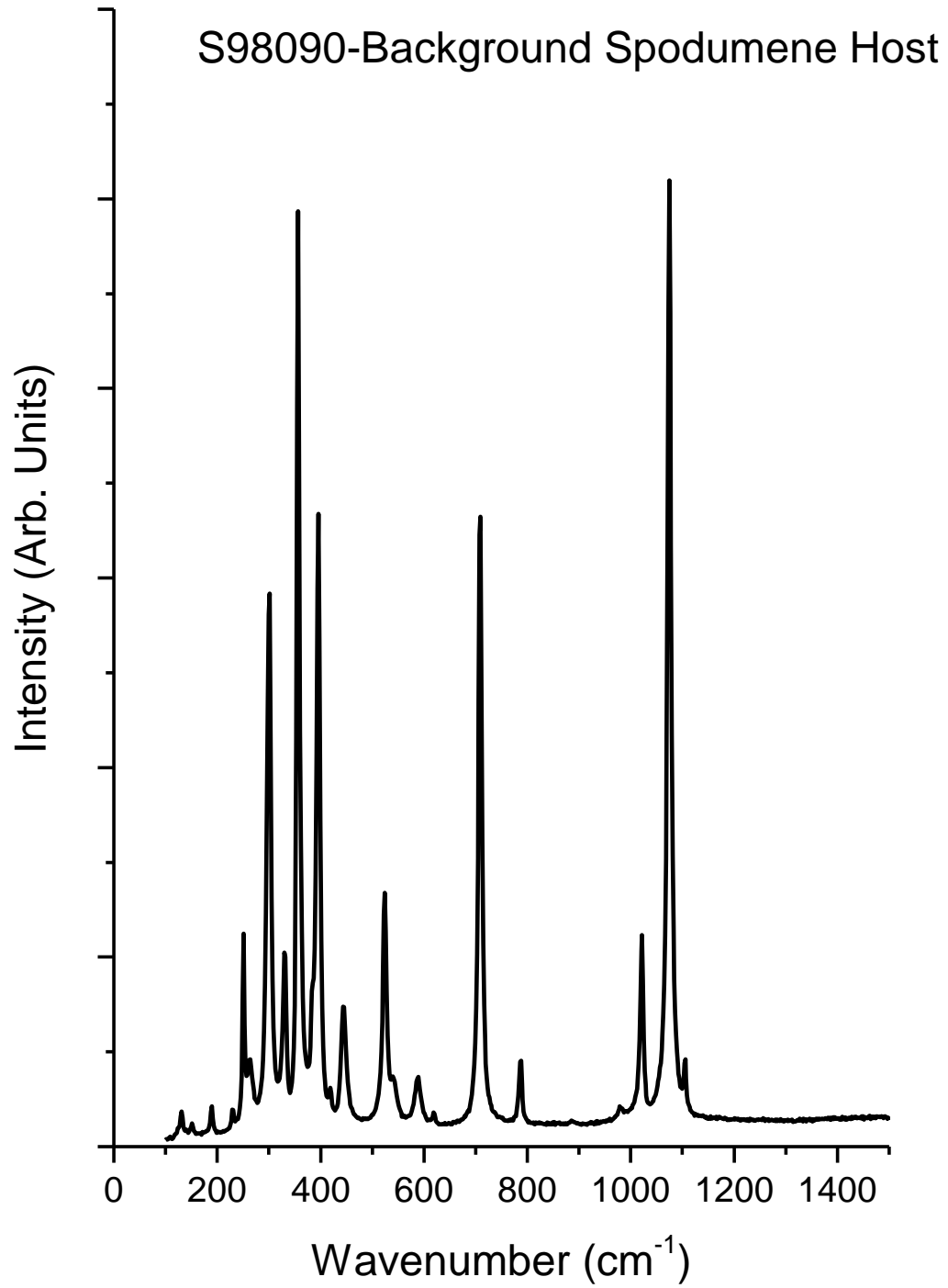
Photograph showing the location of the inclusions (S98090-9 to S98090-15) on the other side of the small polished chip.

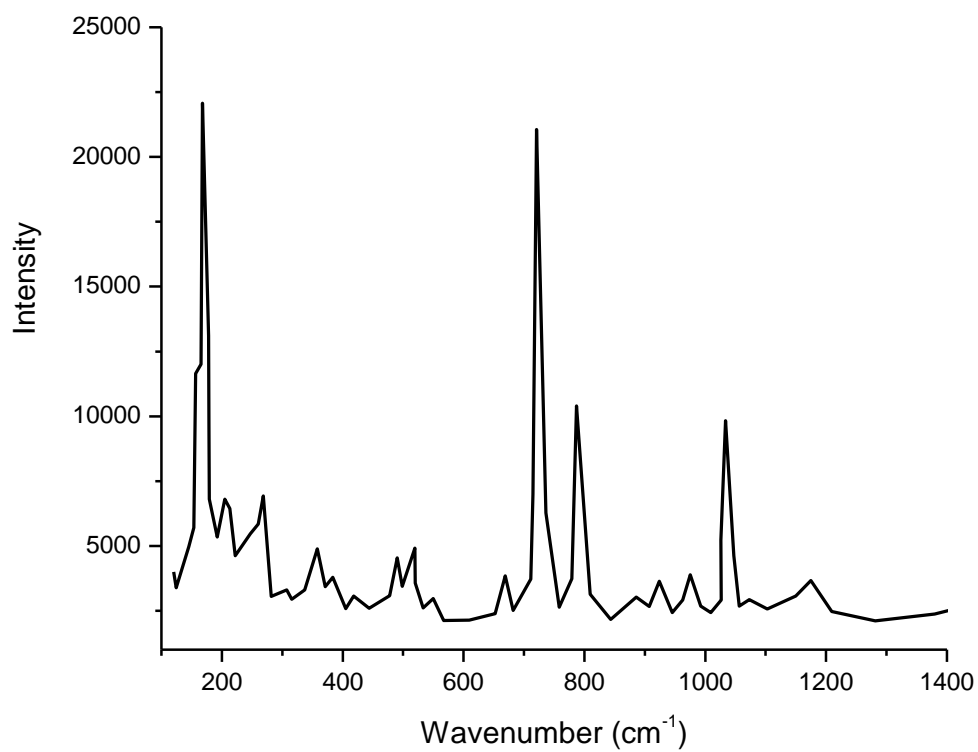


## Type Sample of Diomignite Big Chip (2 of 2 chips) AMNH 98090

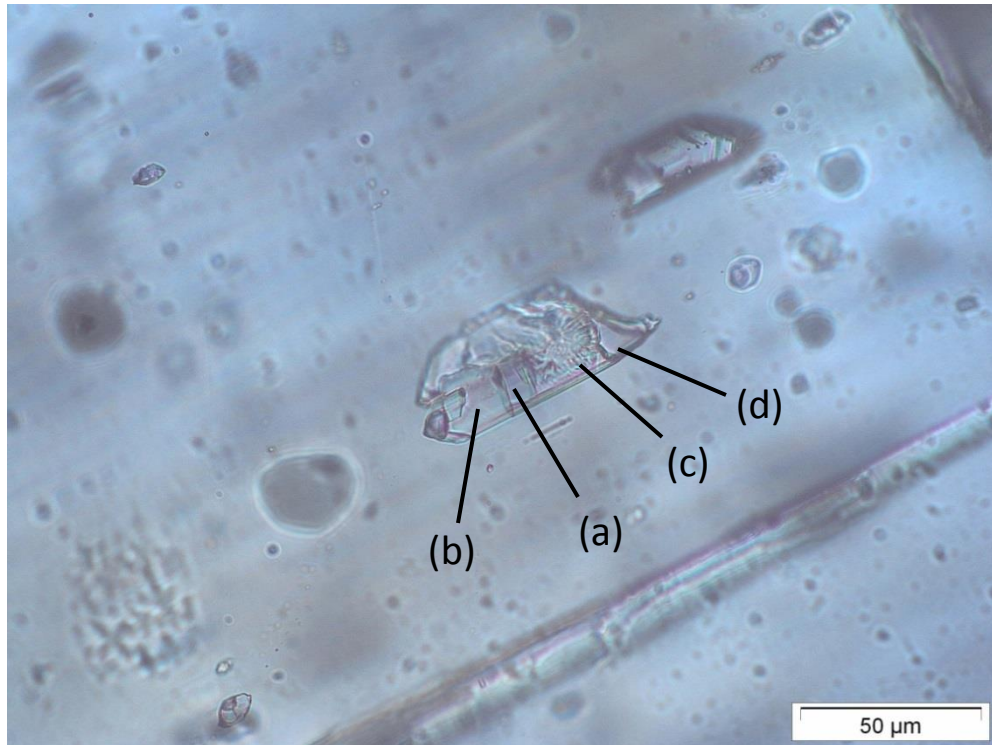


Photograph showing the location of inclusions (B98090-16 to B98090-30) within the larger polished chip of spodumene (type sample 98090) housed at the American Museum of Natural History.

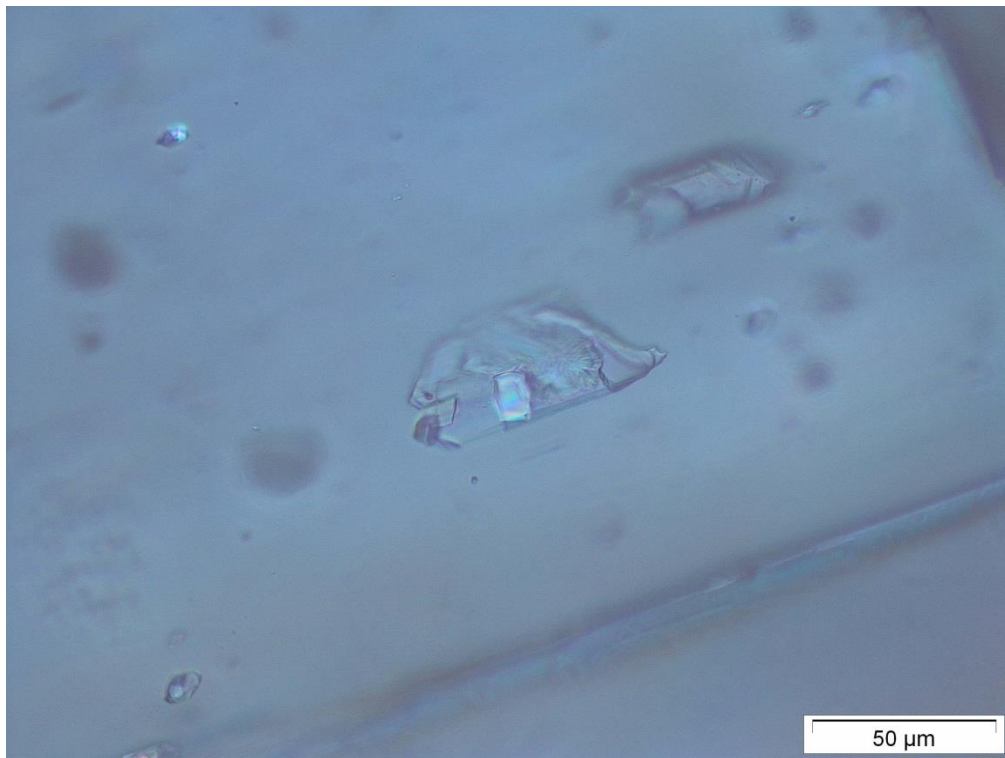




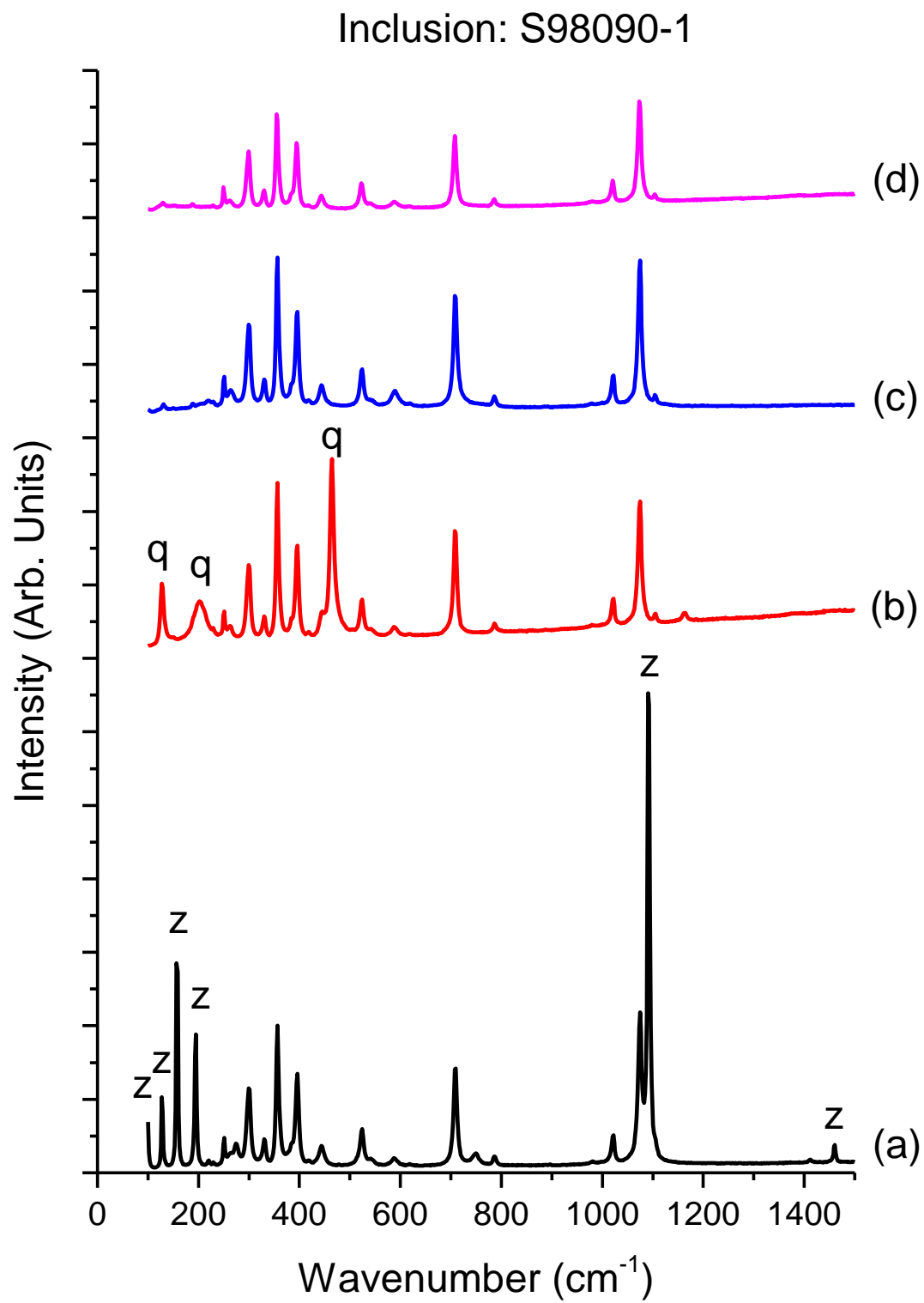
An example of a Raman spectrum of a  $\text{Li}_2\text{B}_4\text{O}_7$  crystal at 30 °C (from Wan et al. 2014).



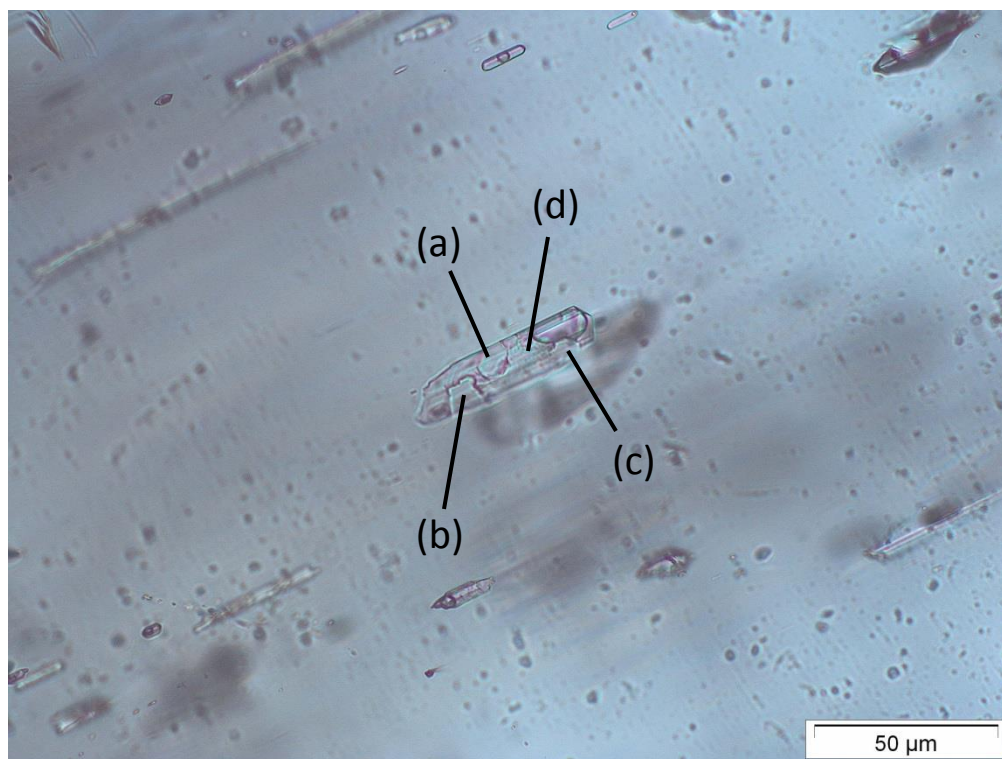
**S98090-1ppl**



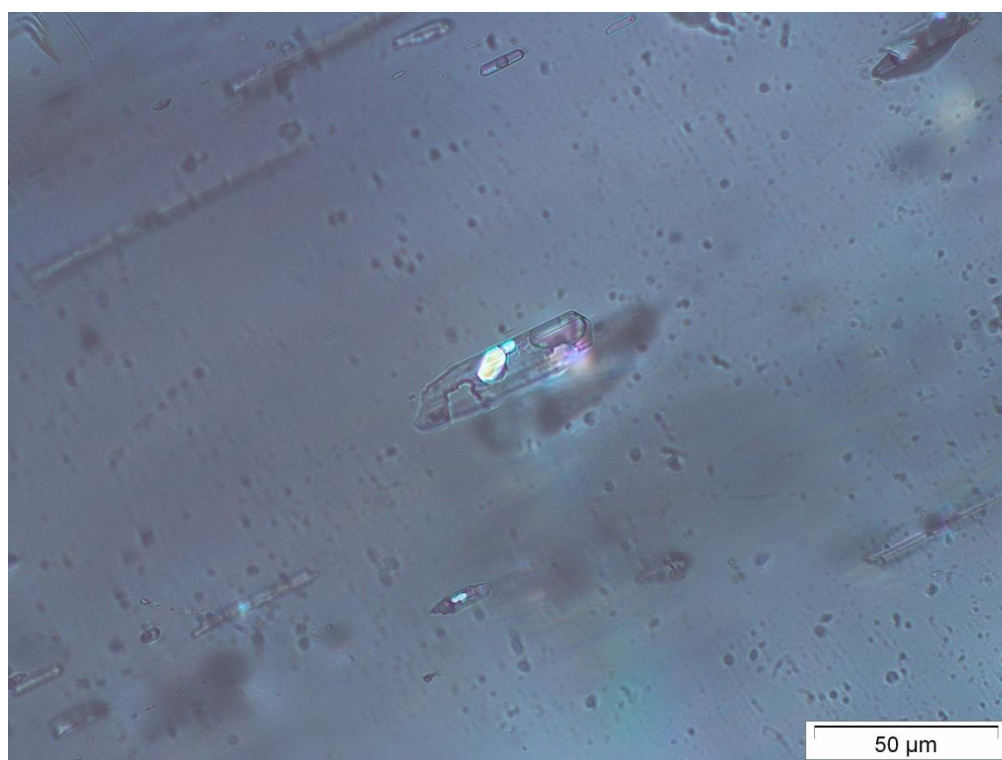
**S98090-1xpl**



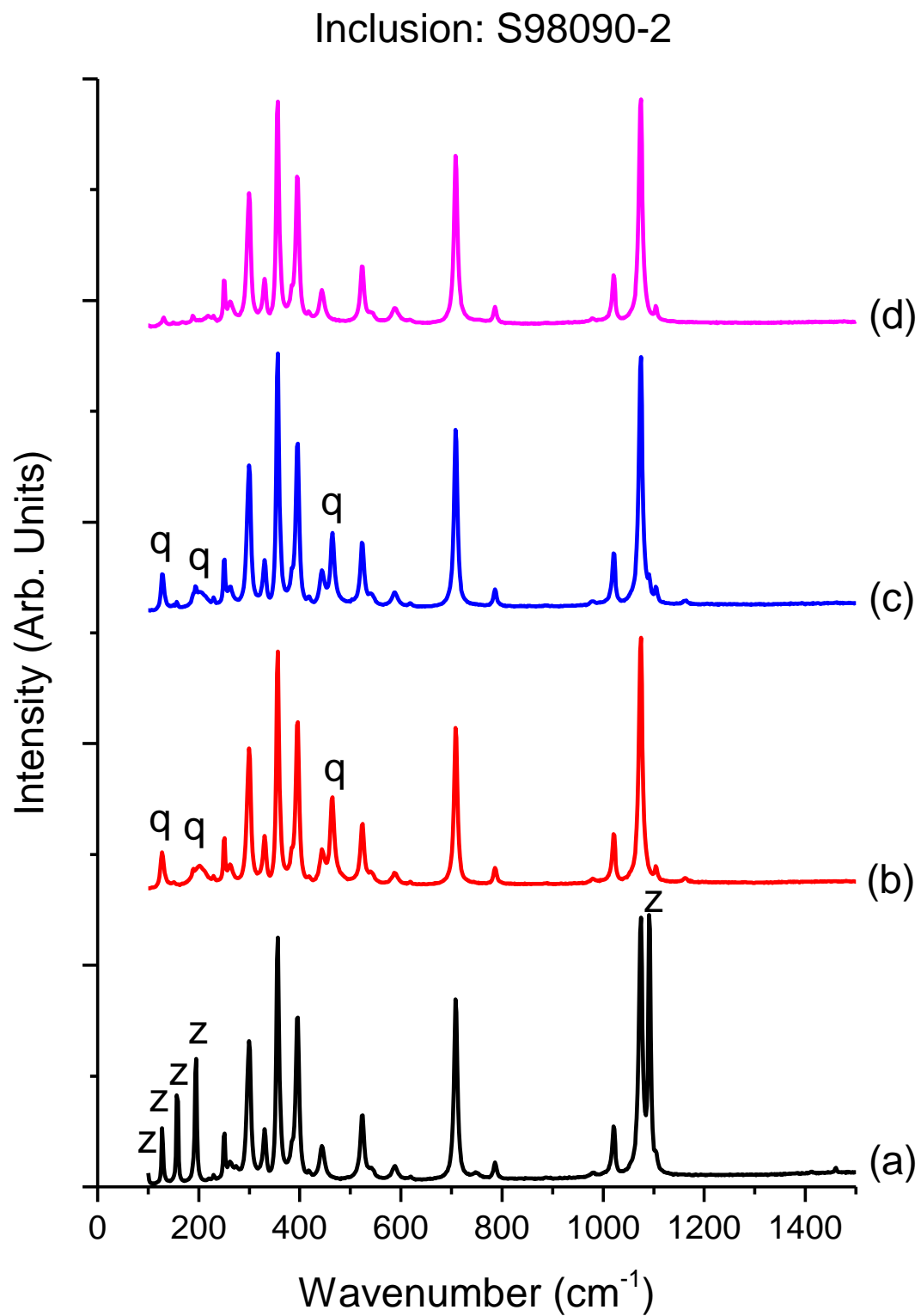


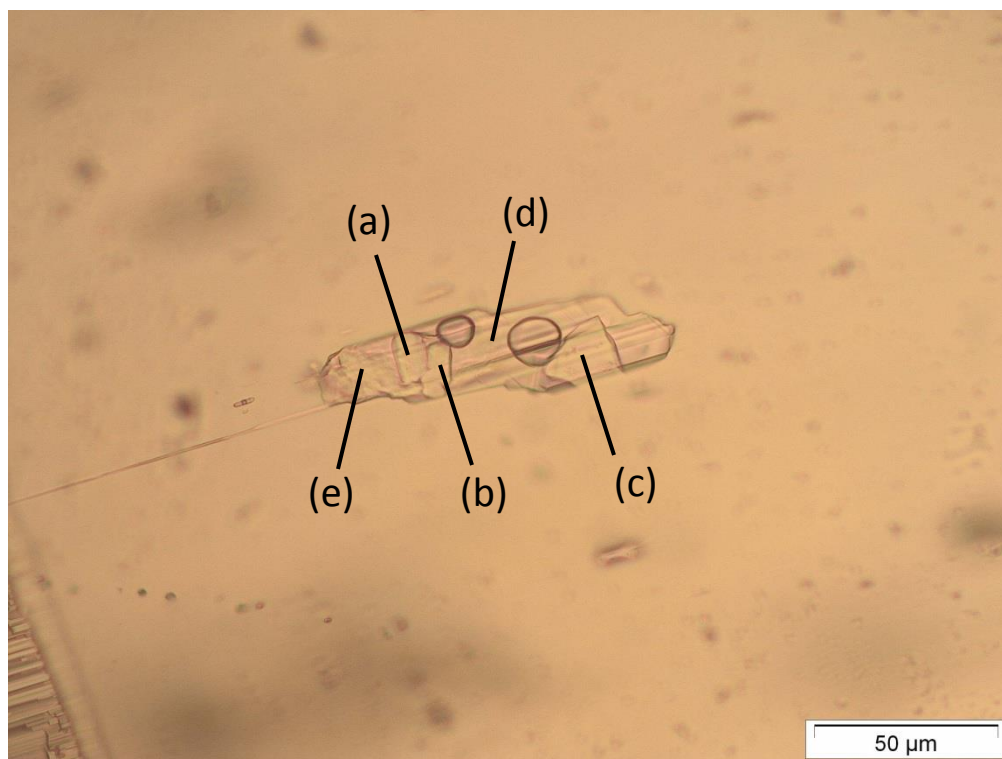


**S98090-2ppl**

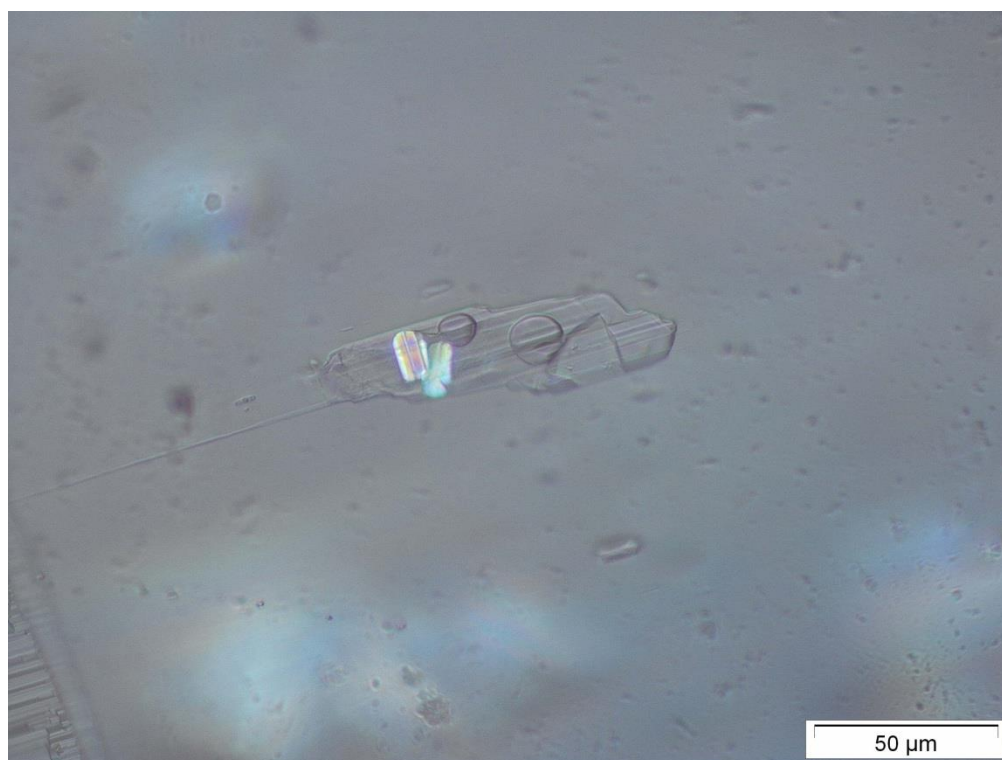


**S98090-2xpl**



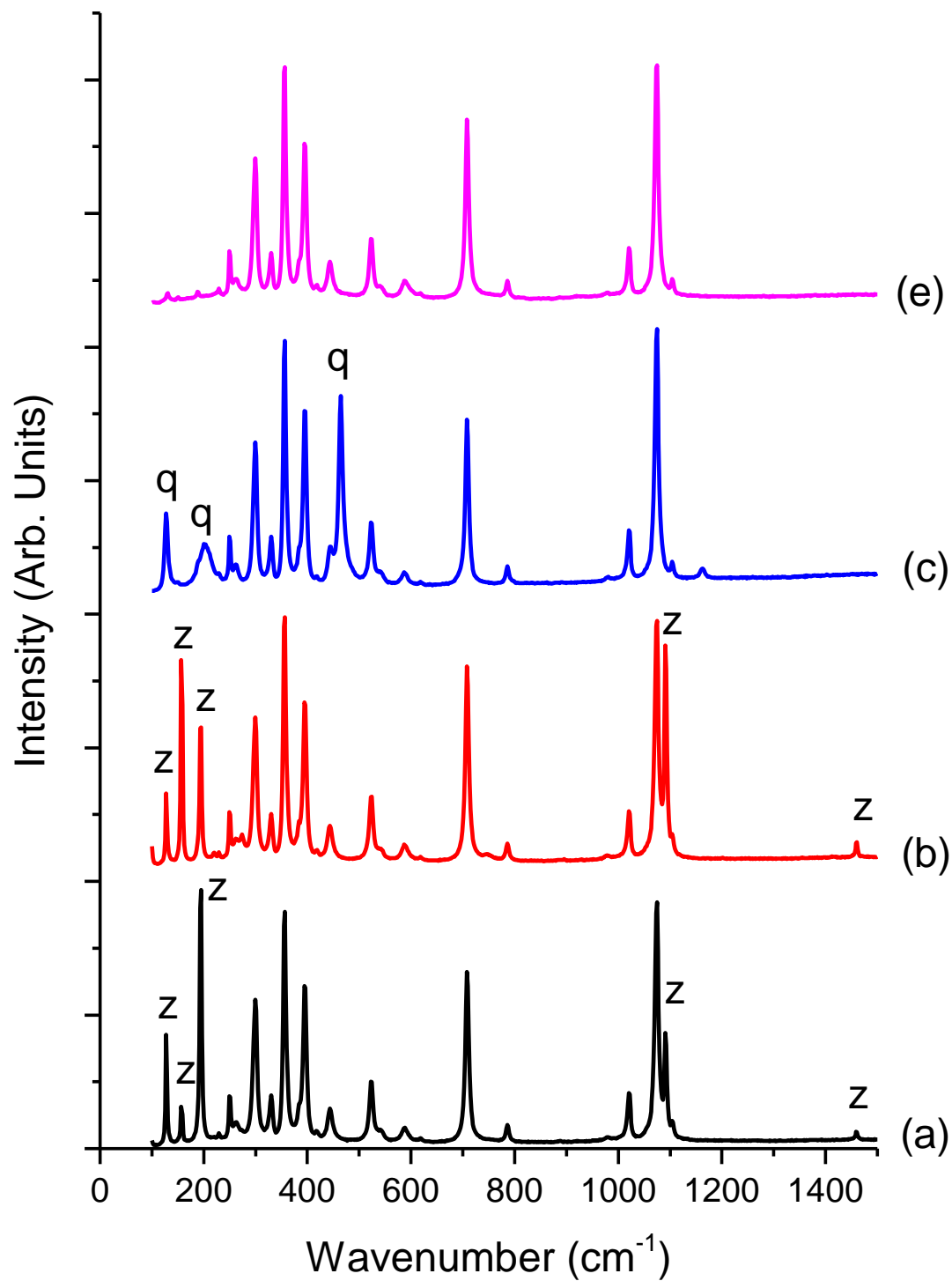


**S98090-3ppl**



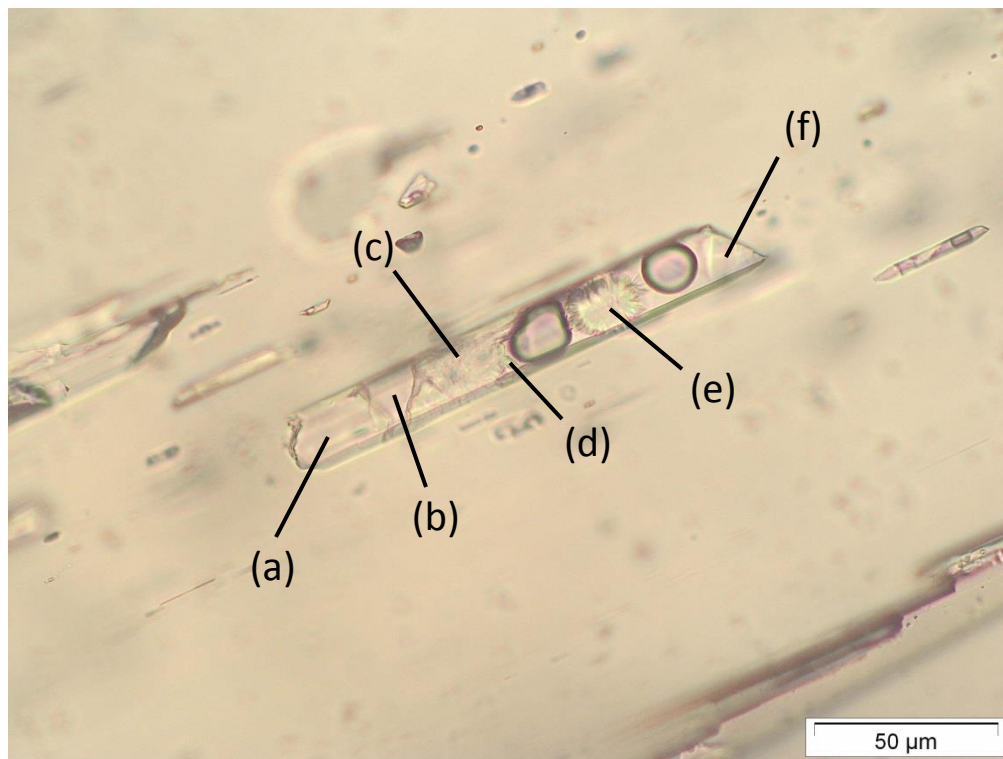
**S98090-3xpl**

Inclusion: S98090-3

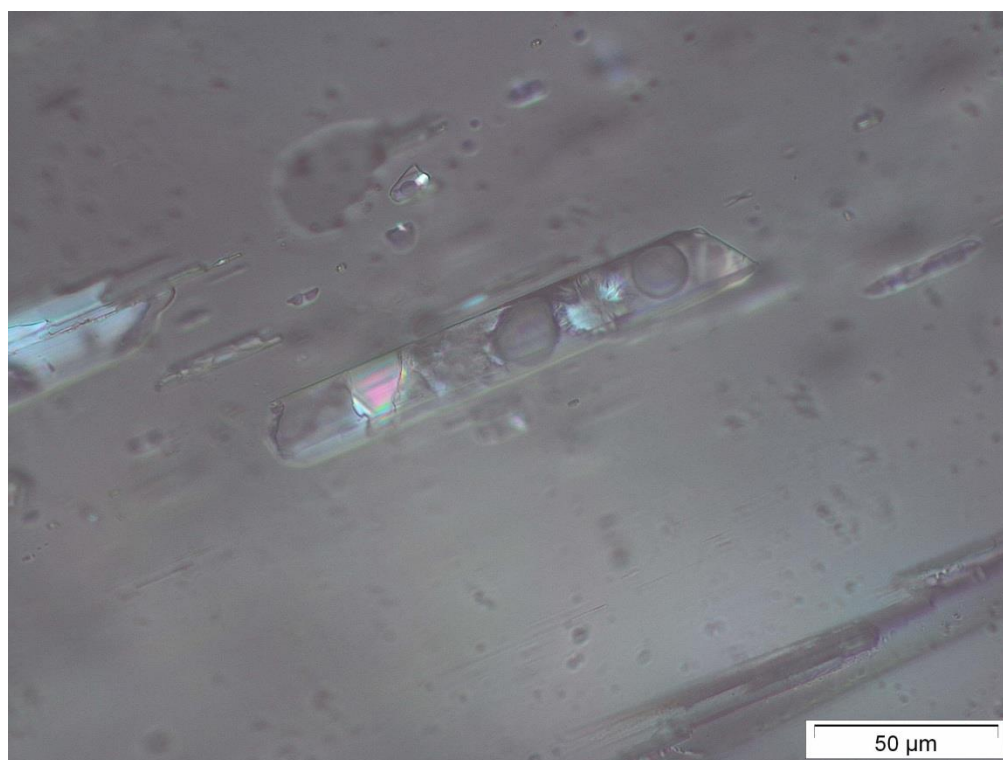


Note: (d) - data file corrupted



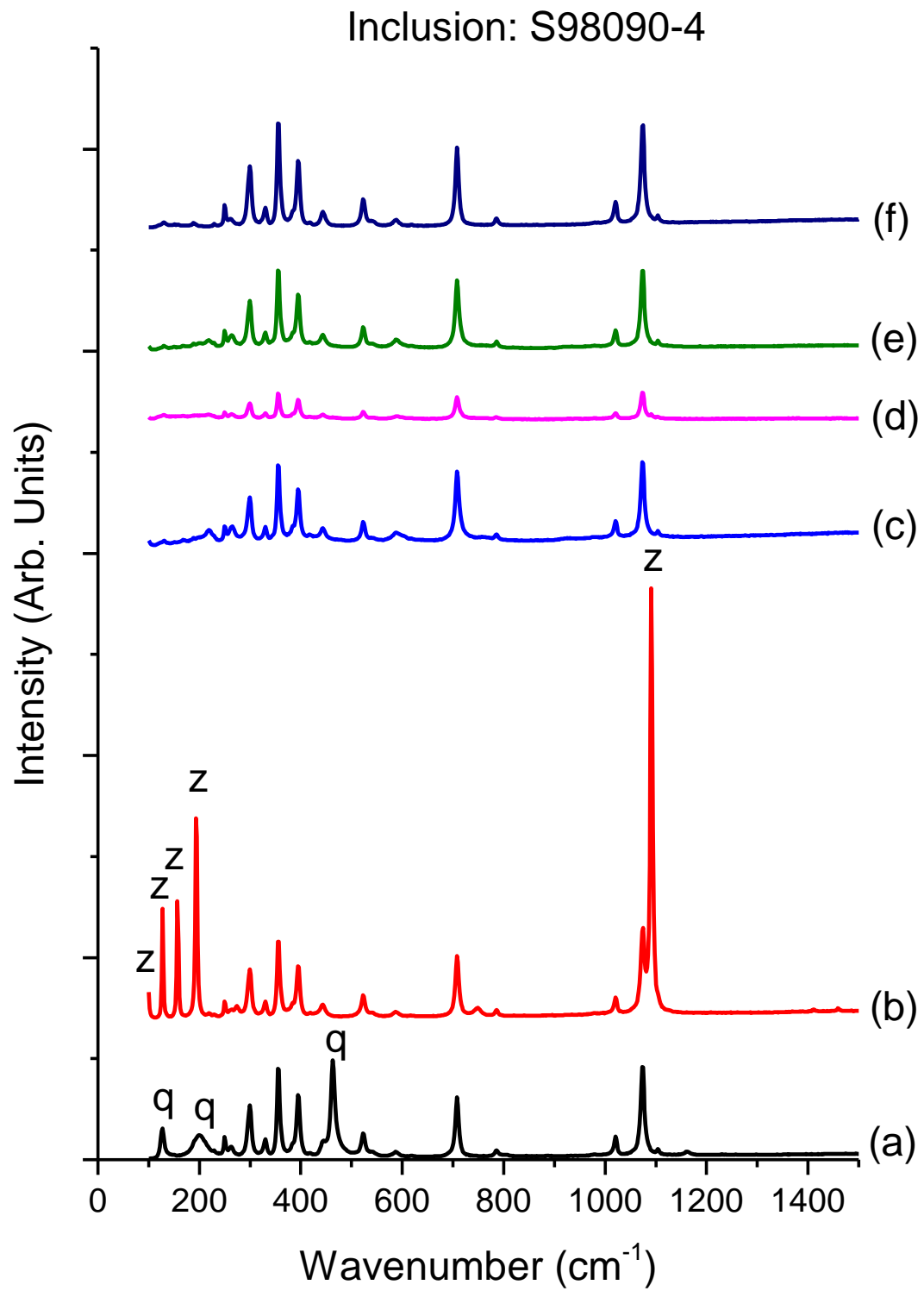


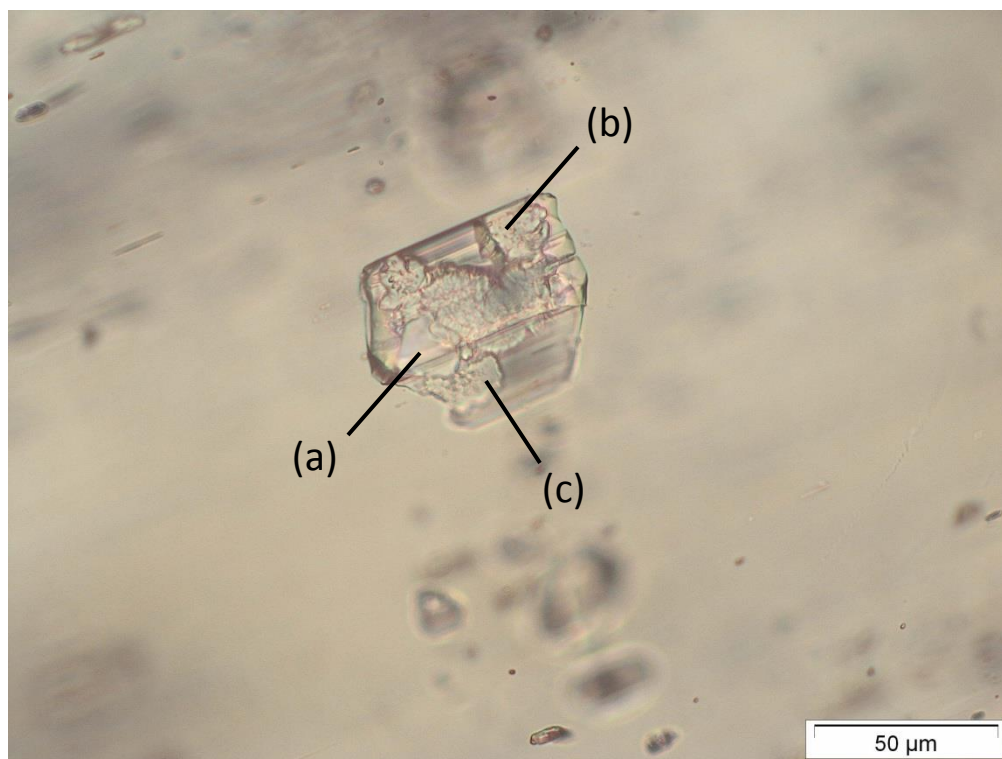
**S98090-4ppl**



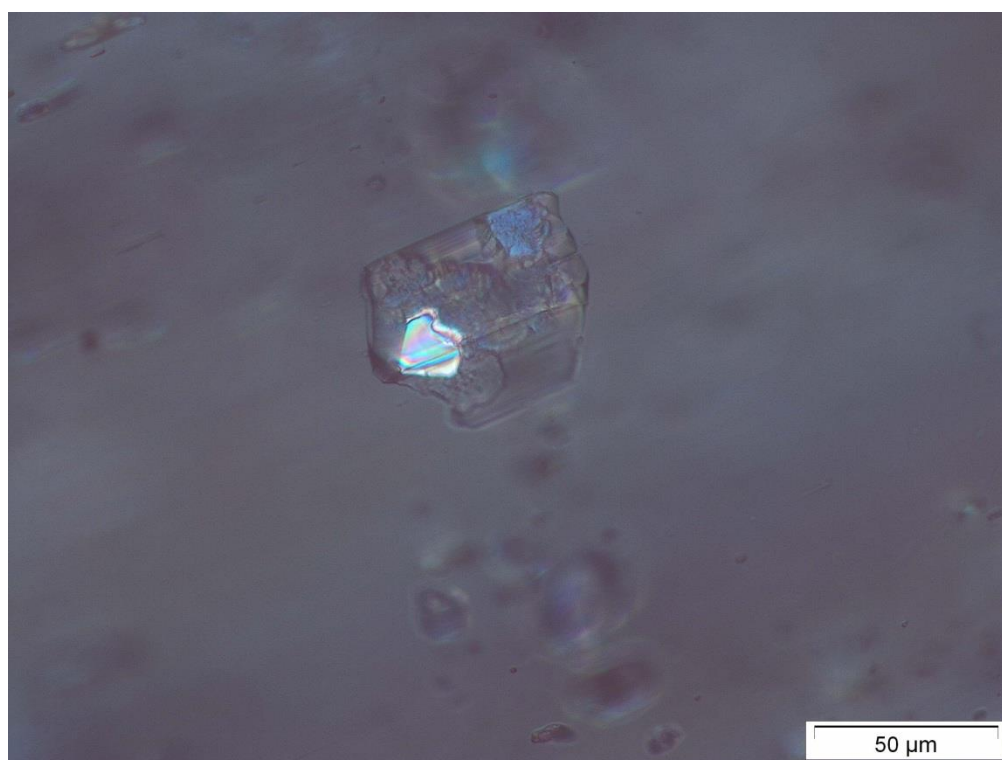
**S98090-4xp**





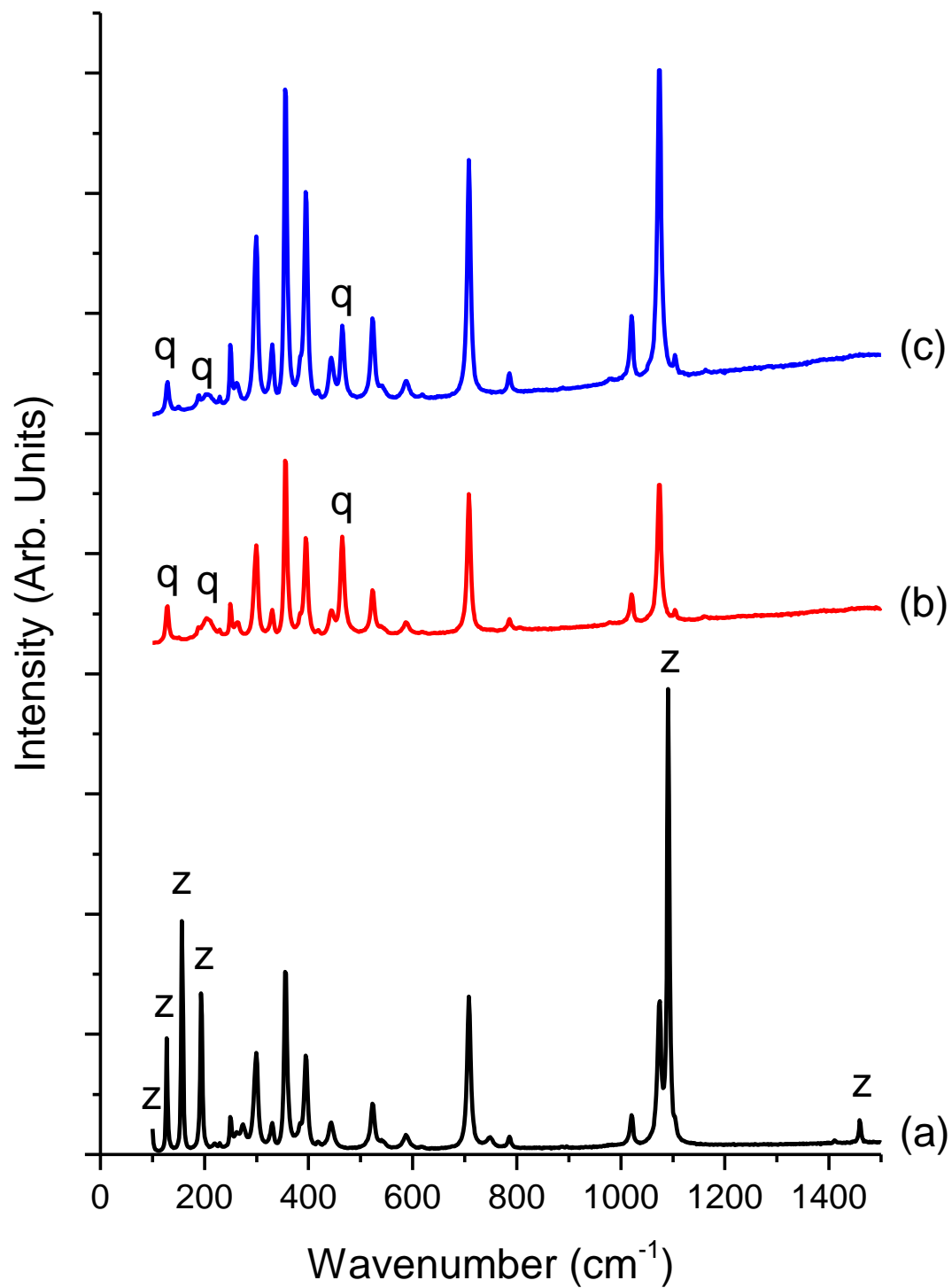


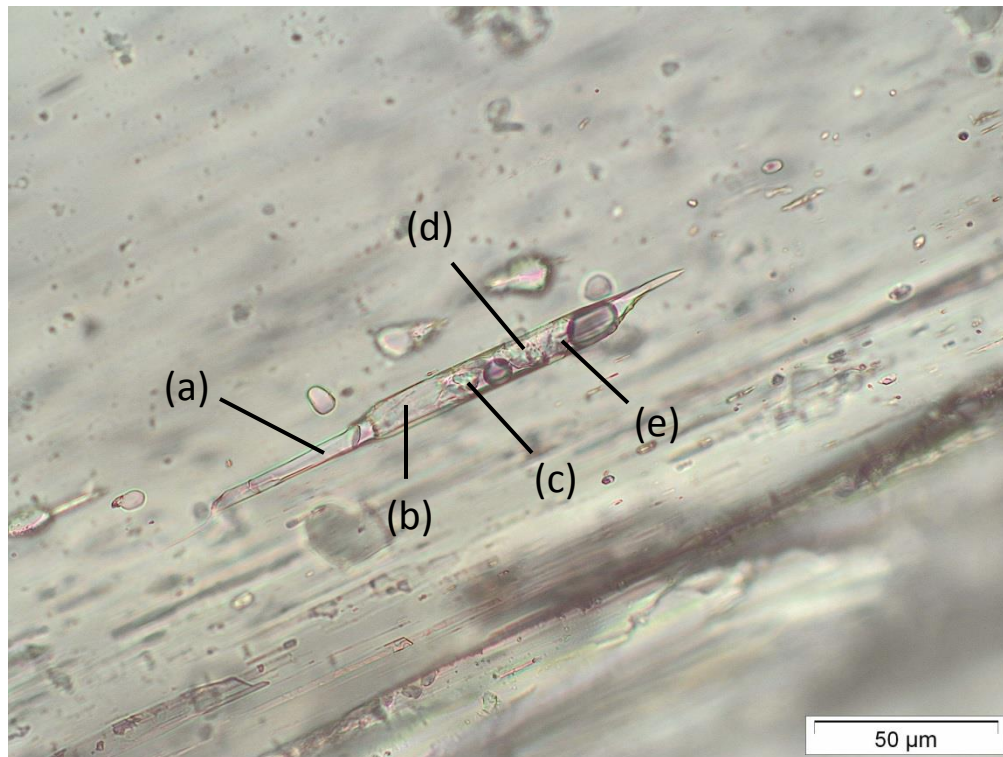
**S98090-5ppl**



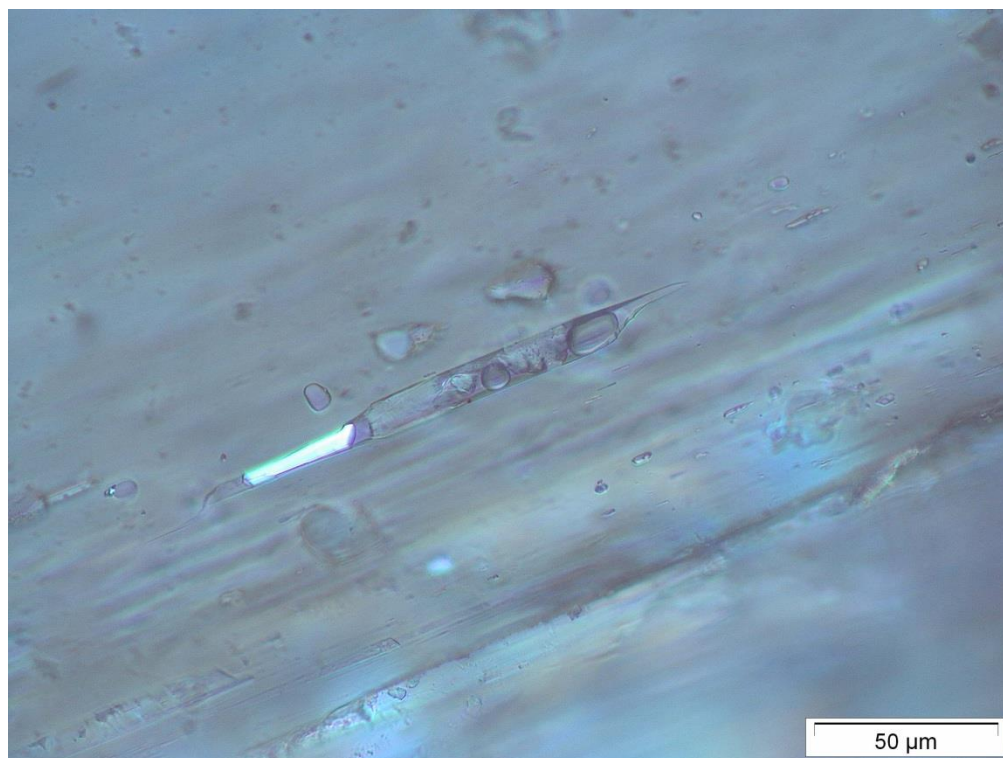
**S98090-5xpl**

Inclusion: S98090-5

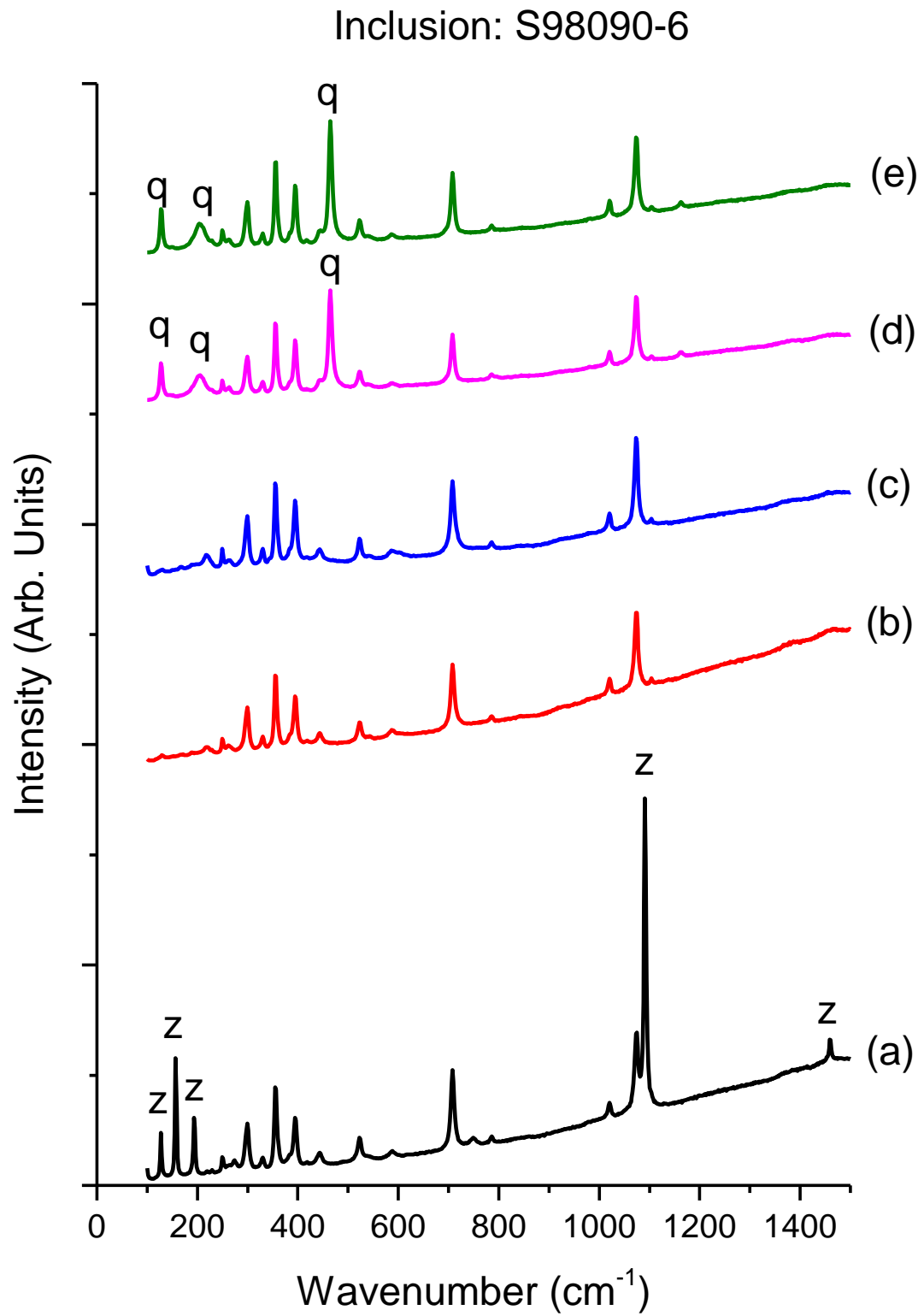




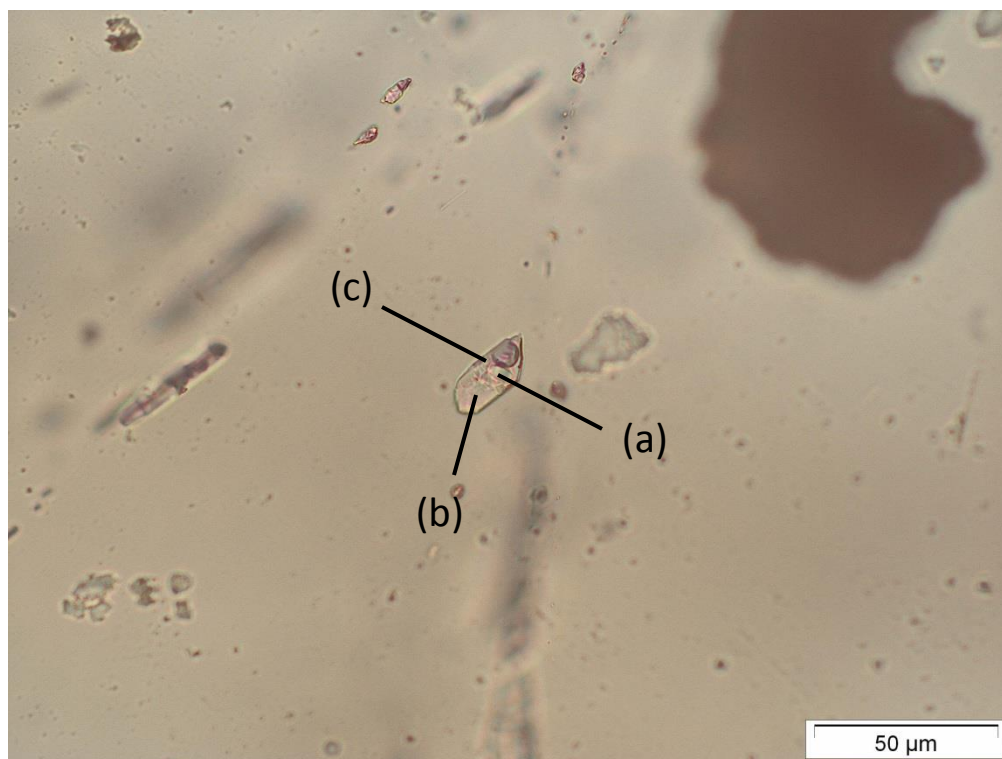
**S98090-6ppl**



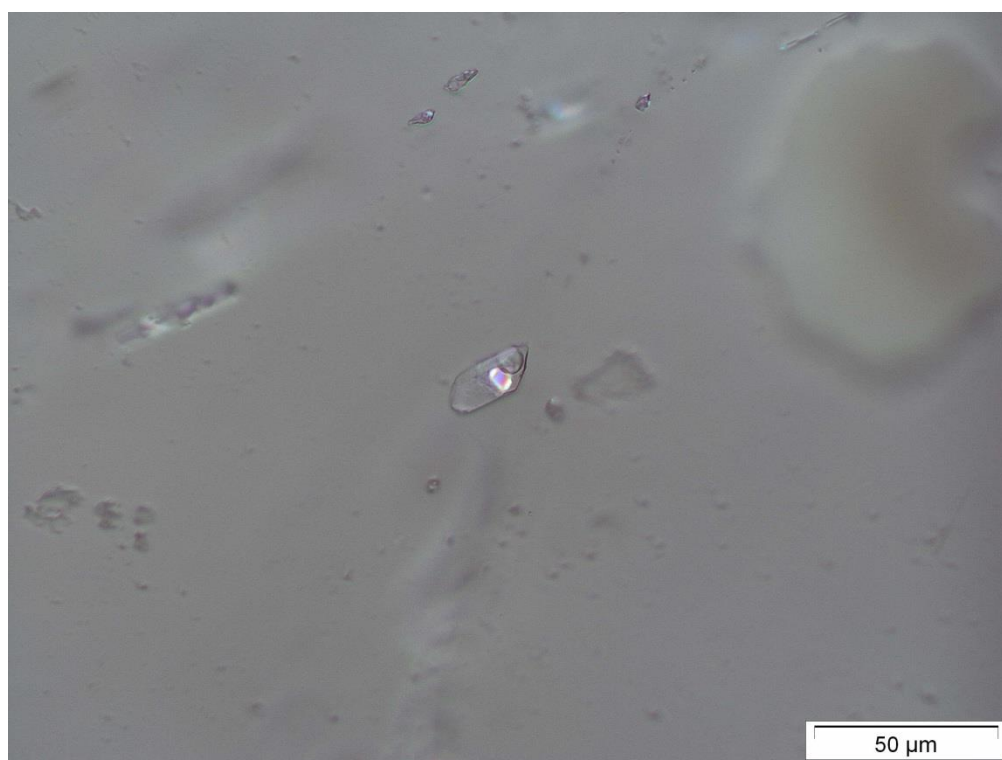
**S98090-6xpl**





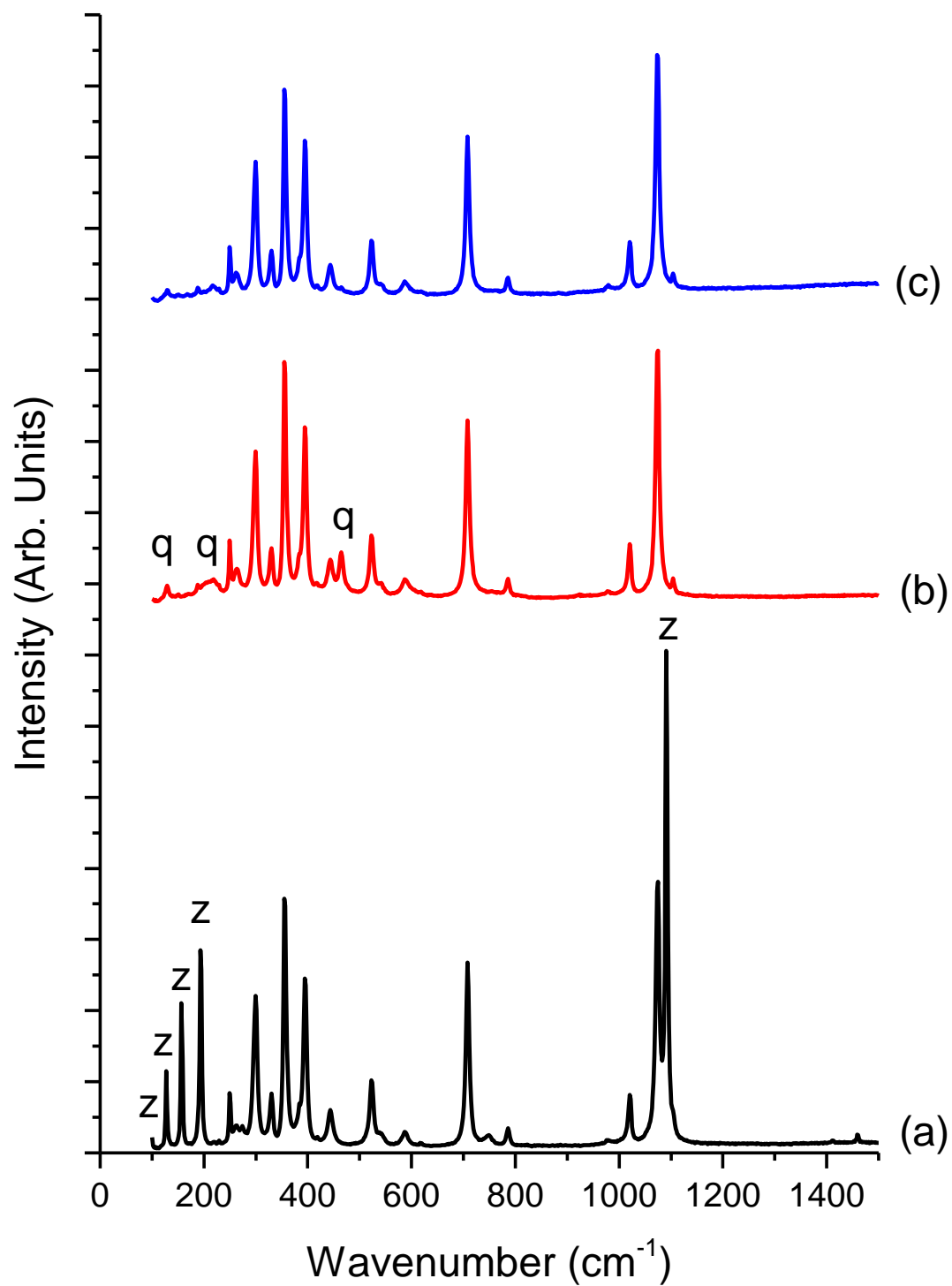


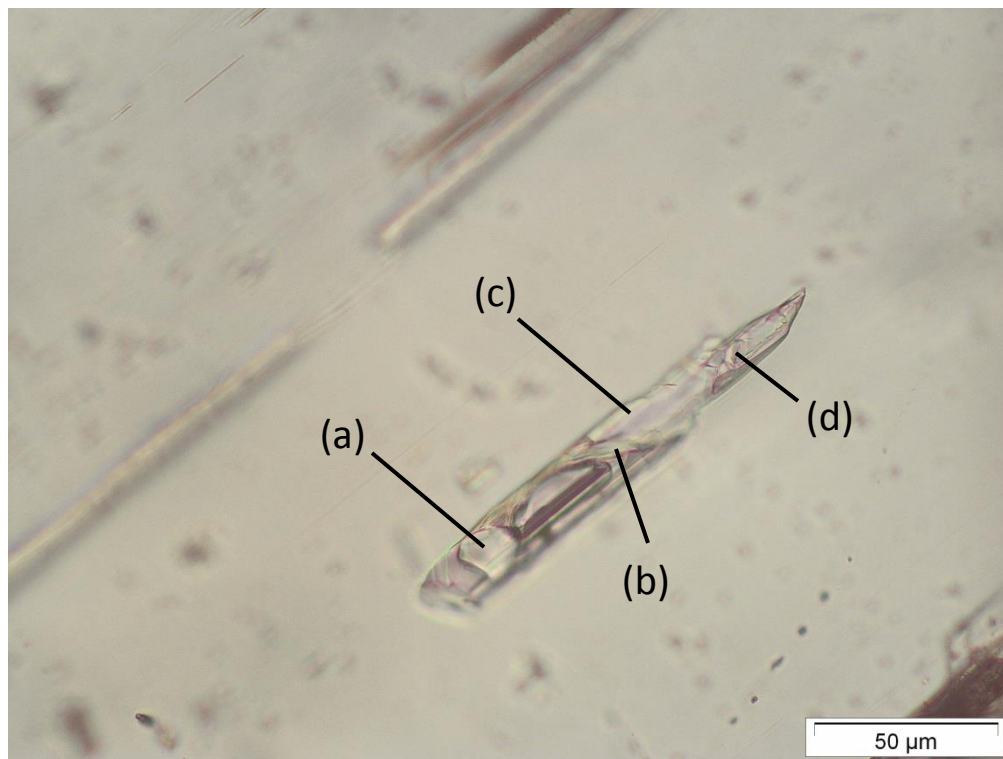
**S98090-7ppl**



**S98090-7xpl**

Inclusion: S98090-7

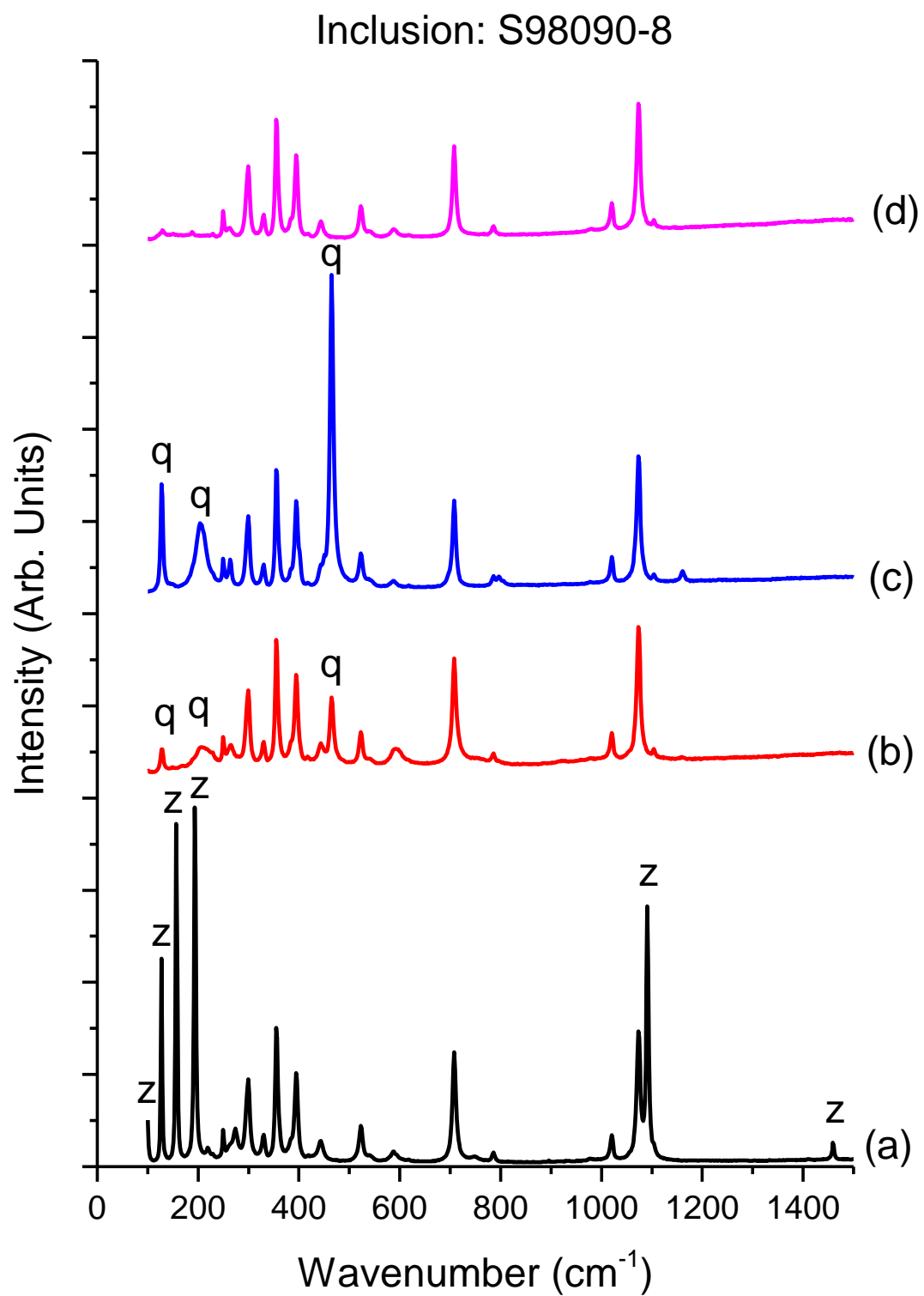


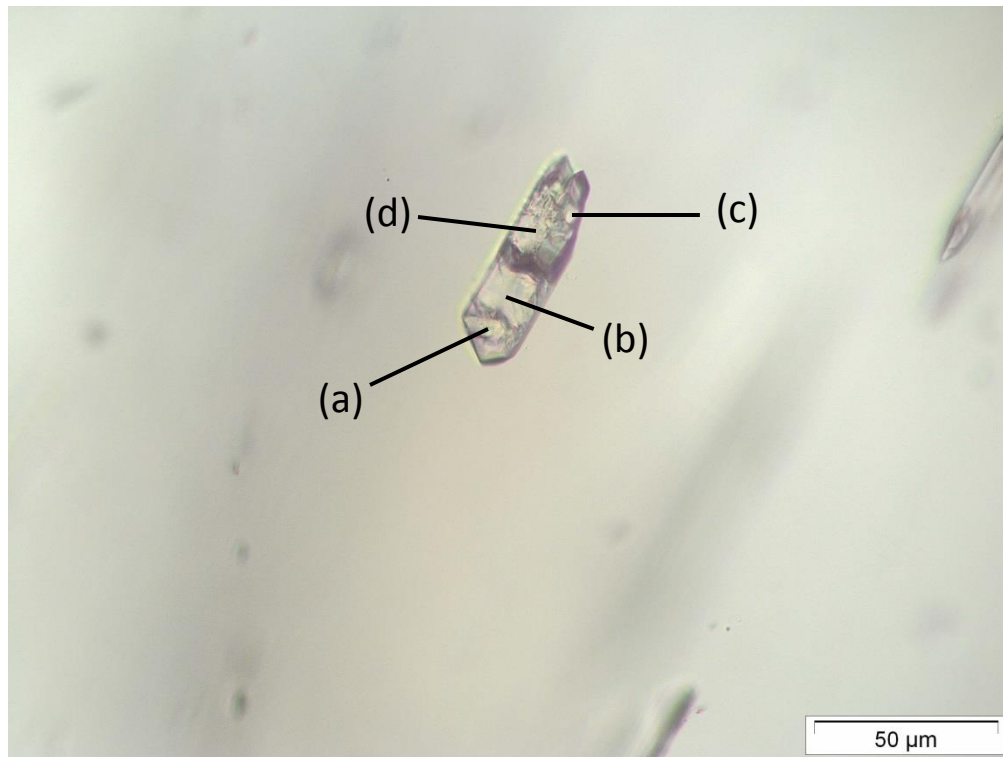


**S98090-8ppl**

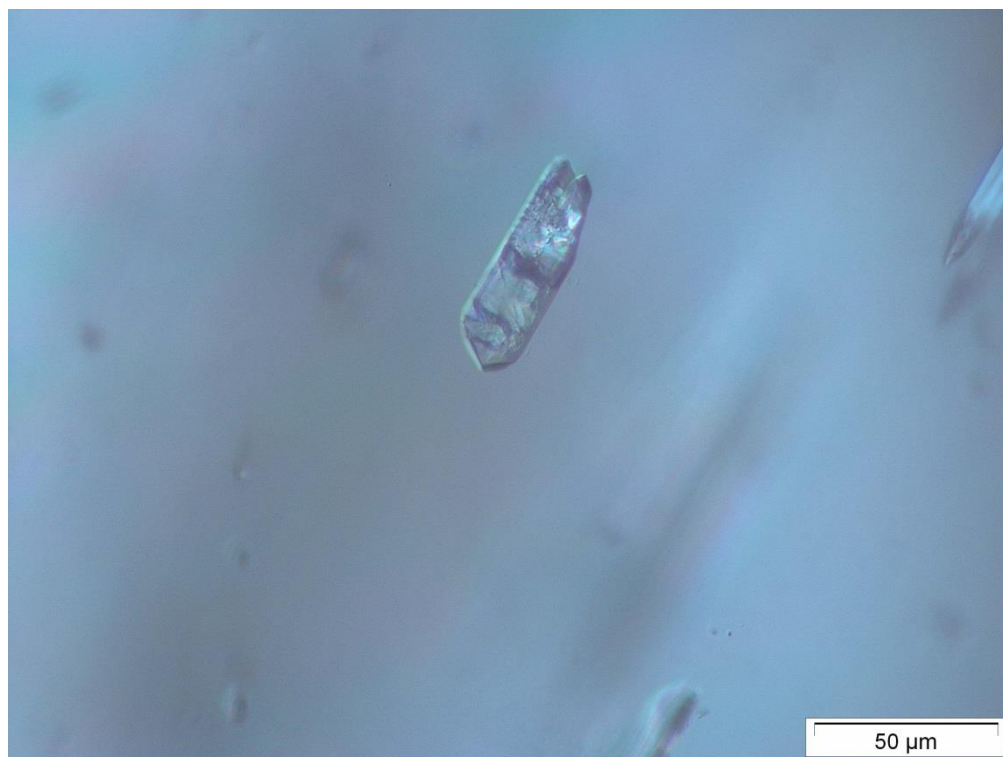


**S98090-8xpl**





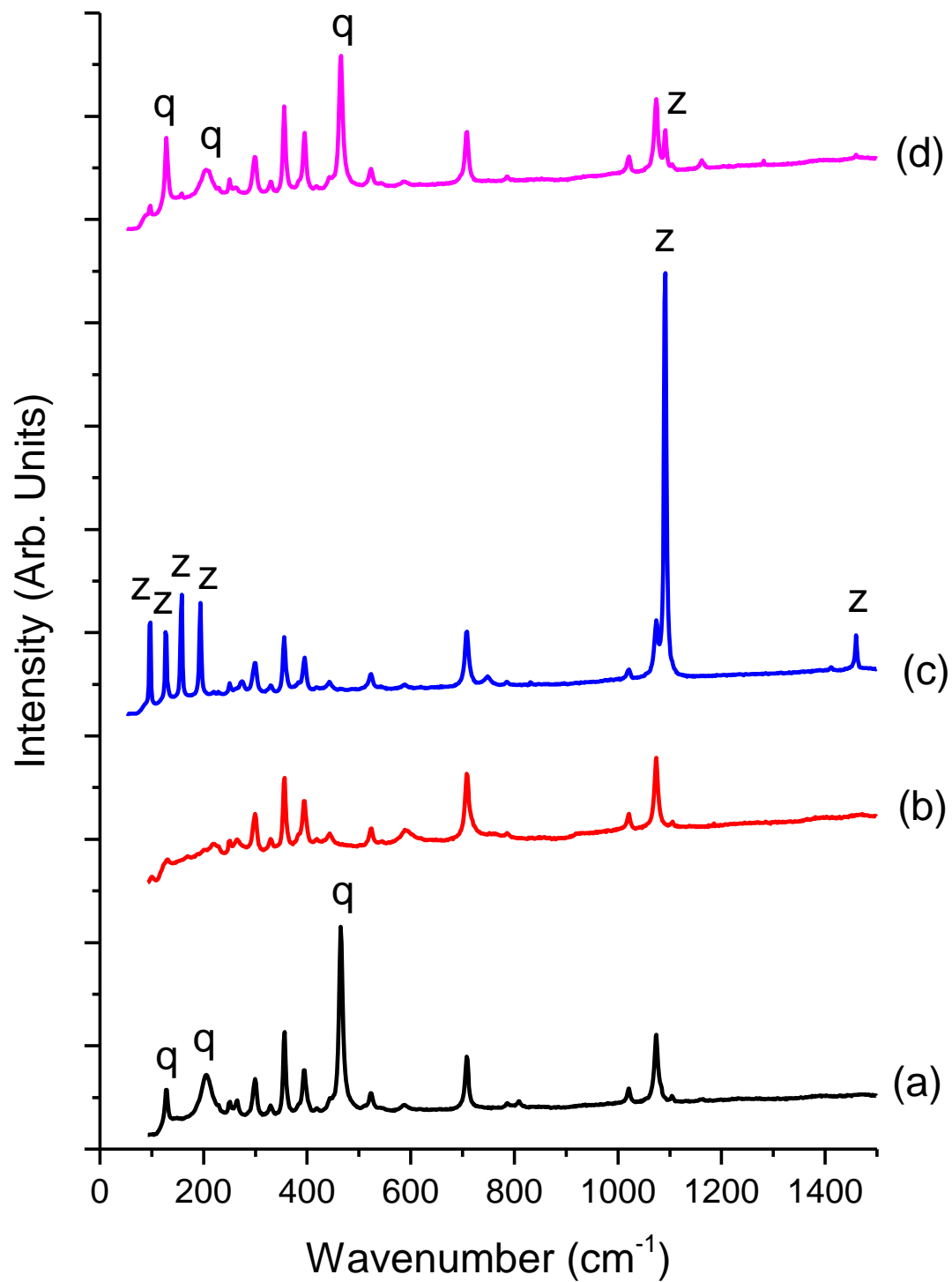
**S98090-9ppl**



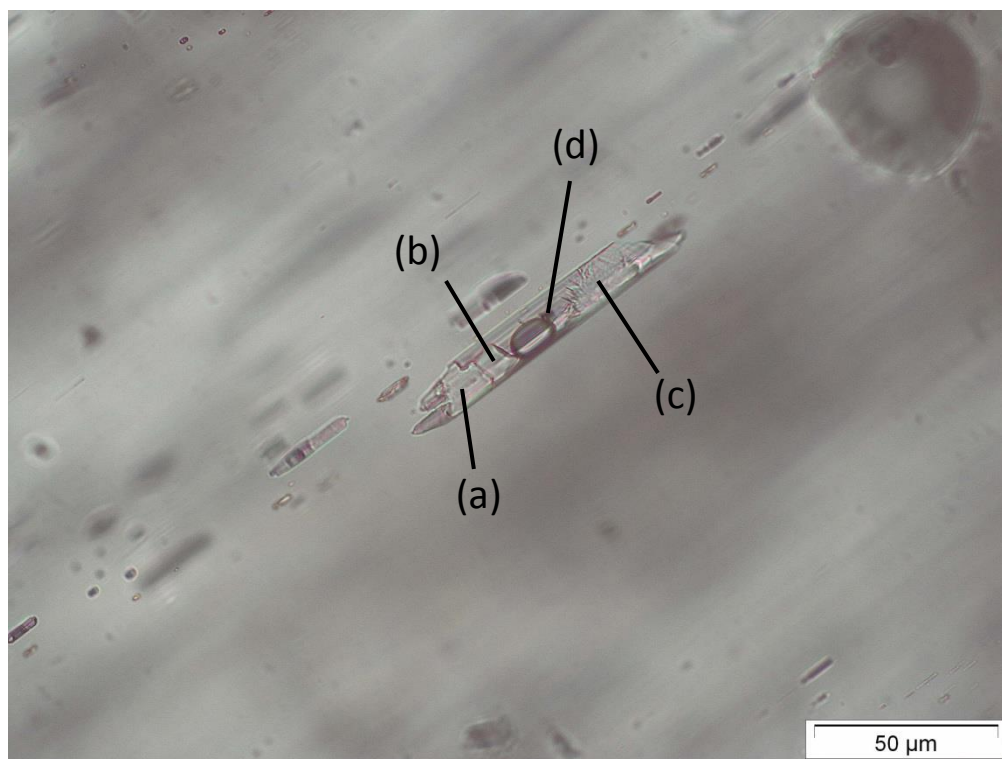
**S98090-9xpl**



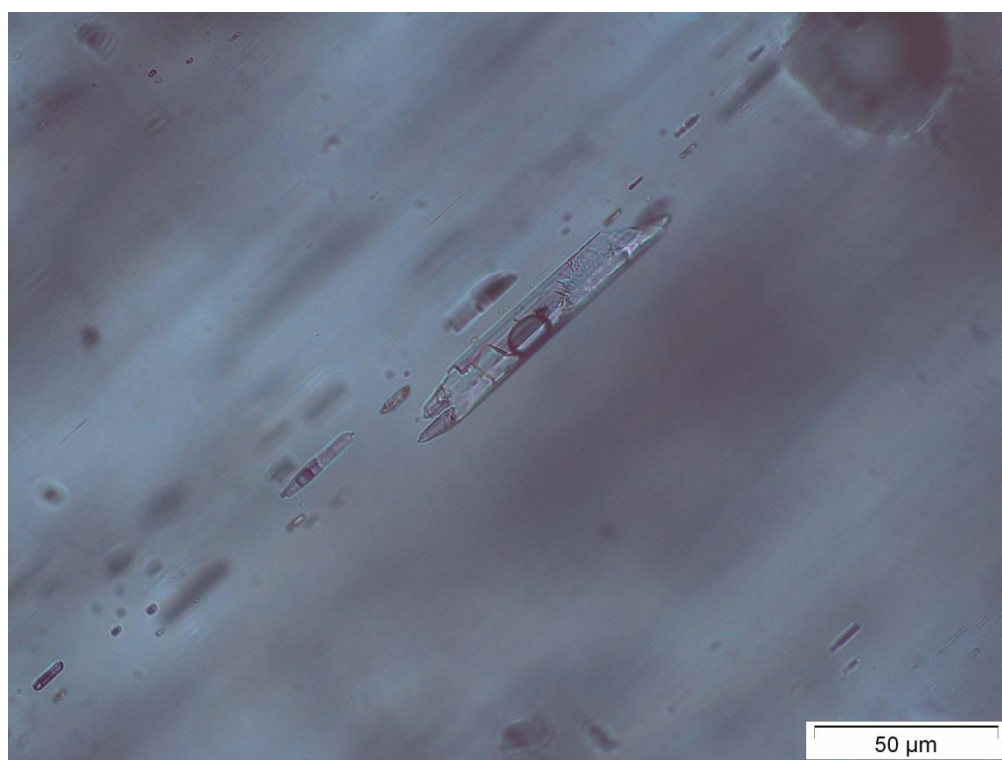
Inclusion: S98090-9



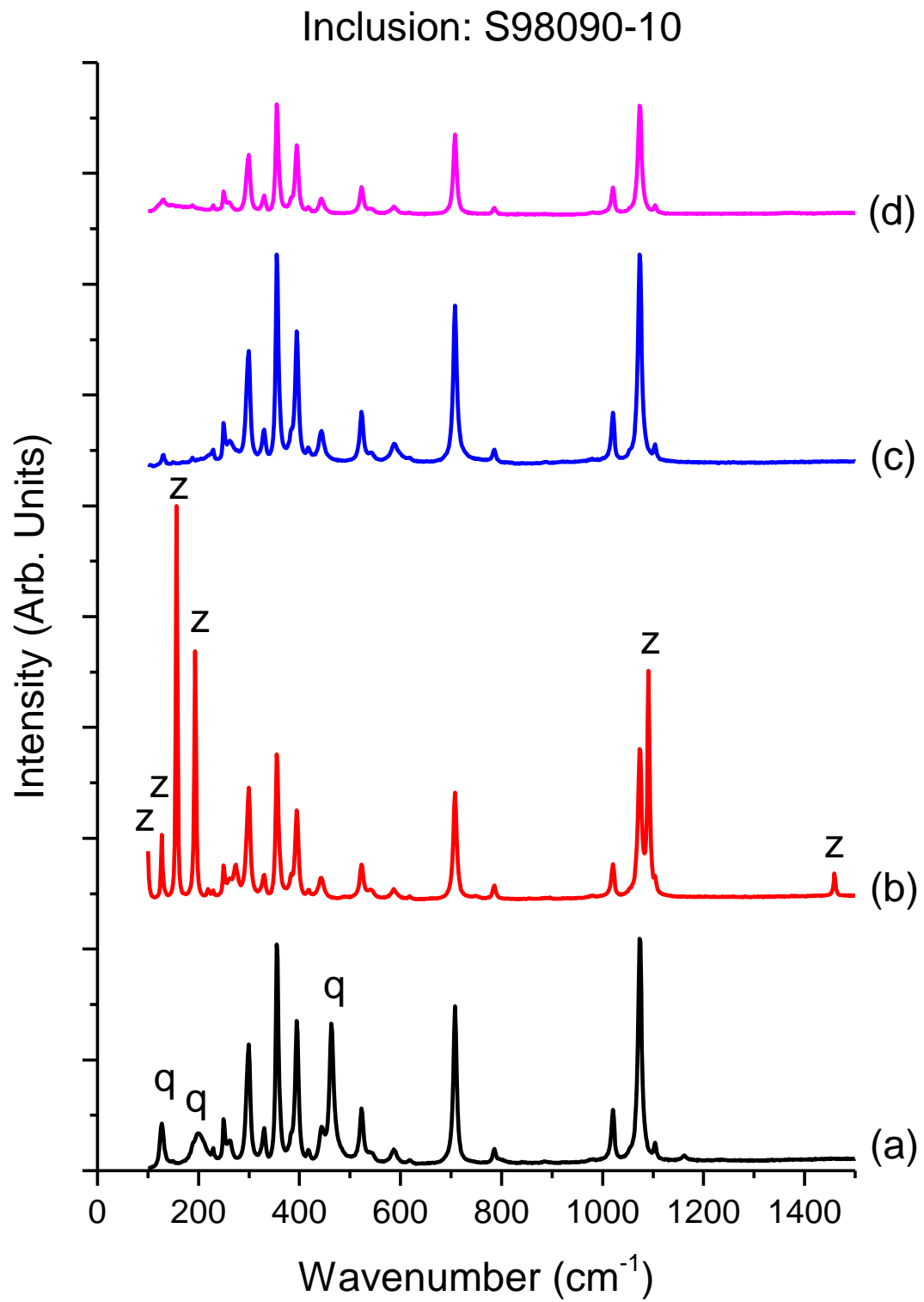
Note: (b) produces OH band at 3641  $\text{cm}^{-1}$



**S98090-10ppl**

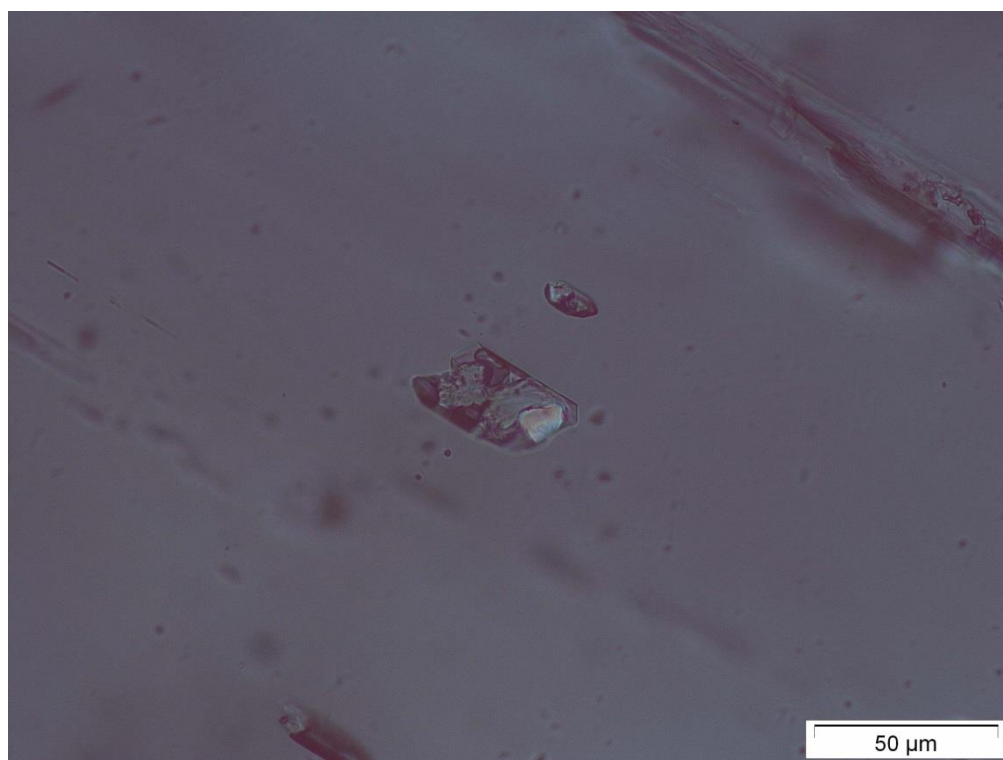


**S98090-10xp**

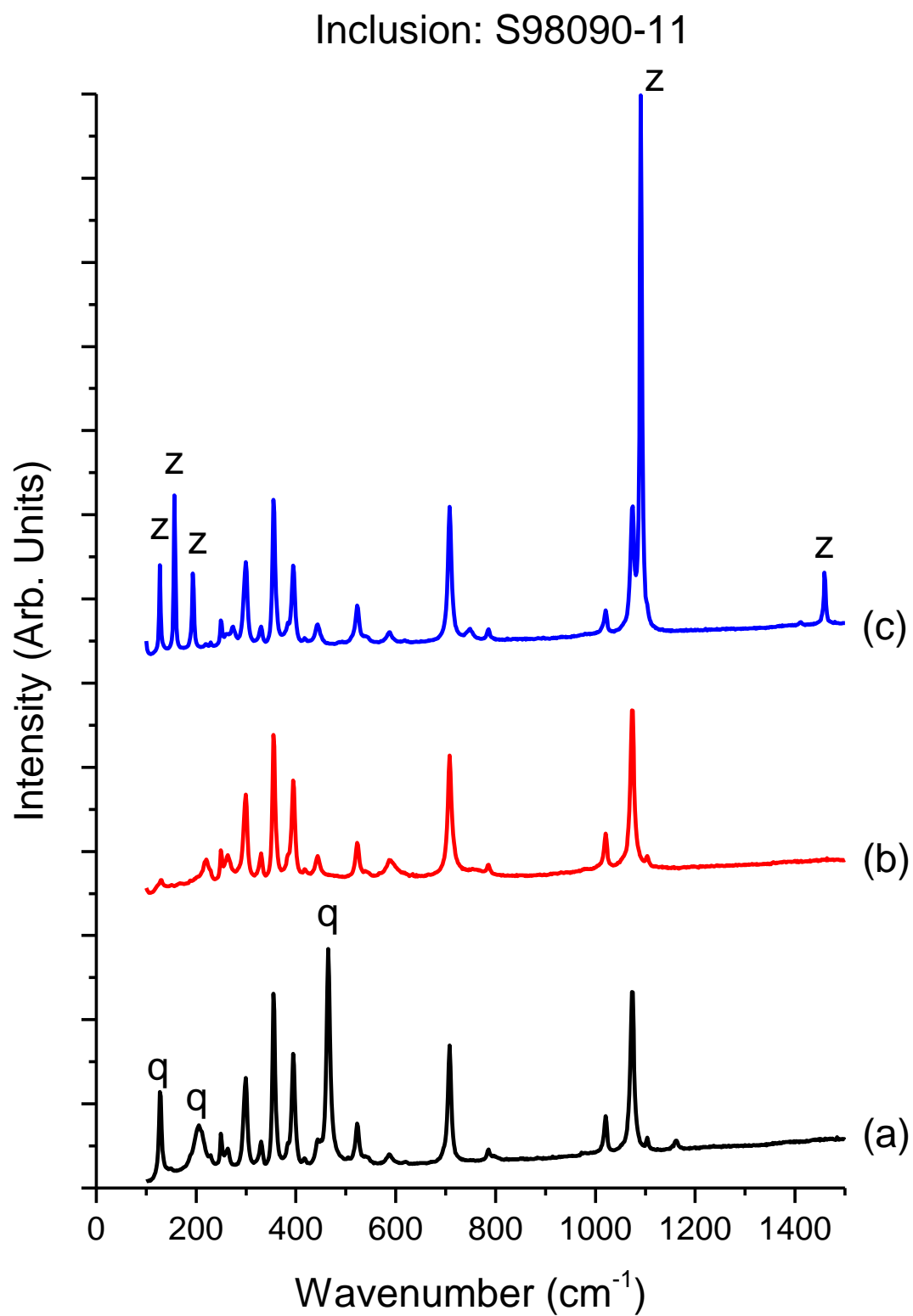




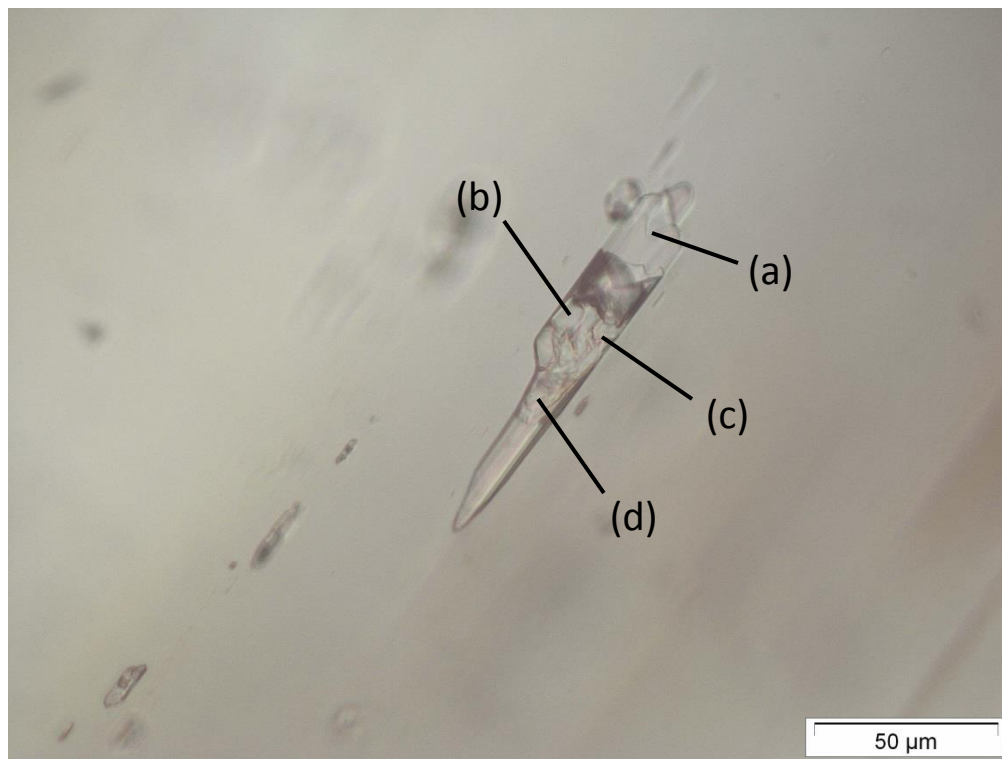
**S98090-11ppl**



**S98090-11xpl**



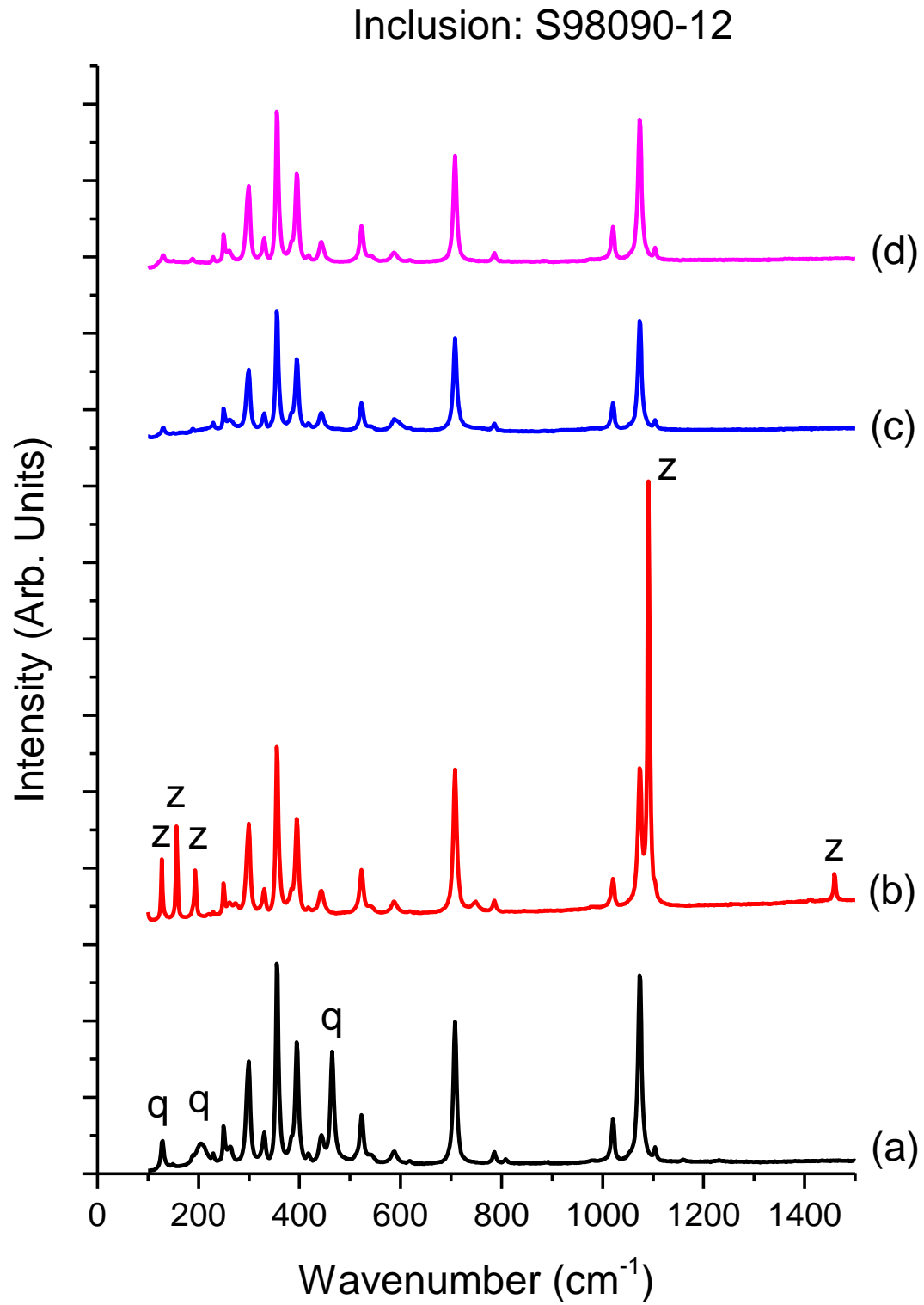


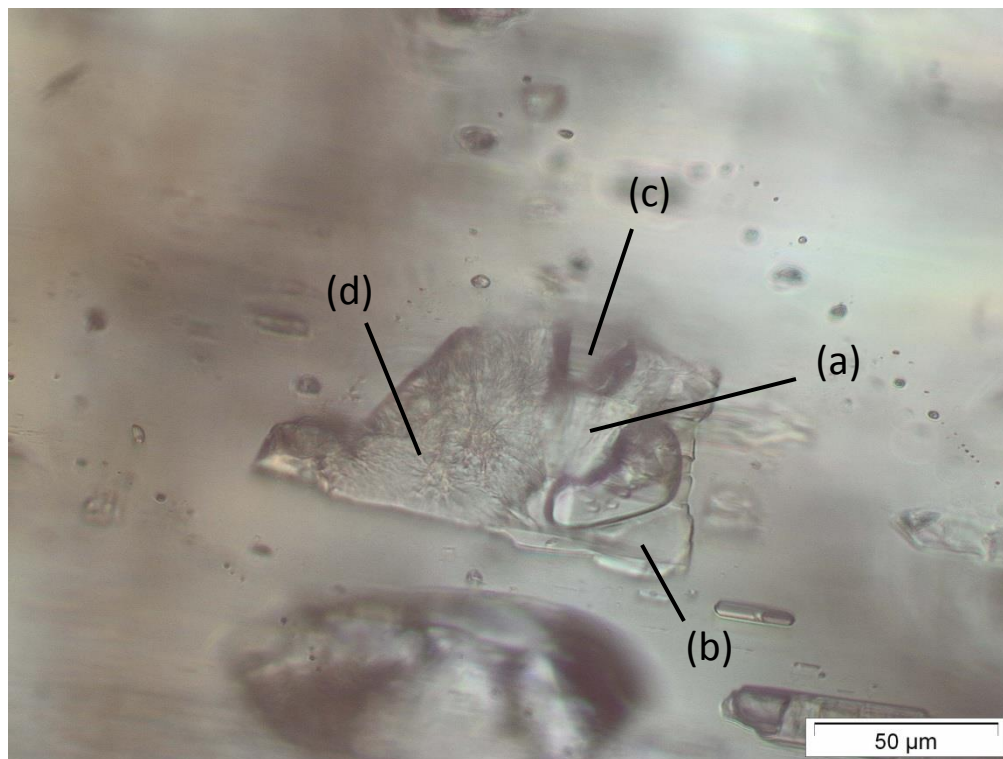


**S98090-12ppl**

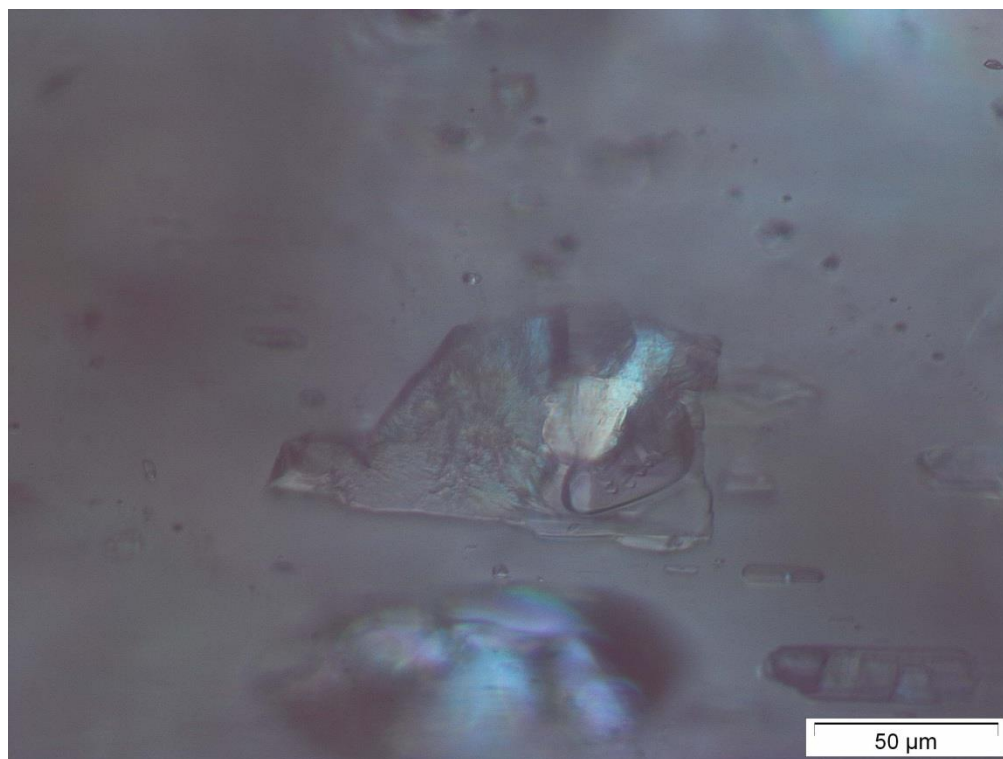


**S98090-12xpl**



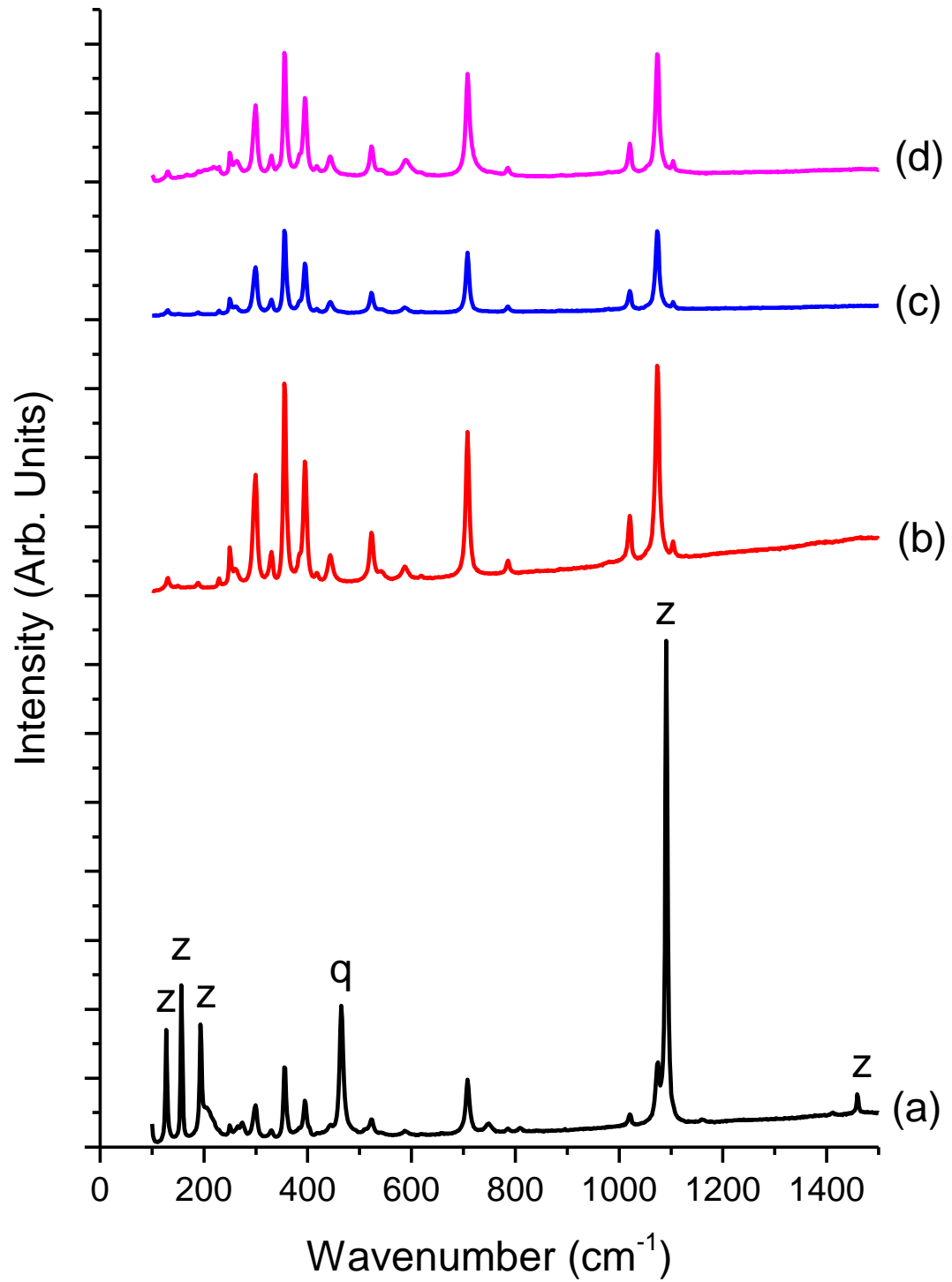


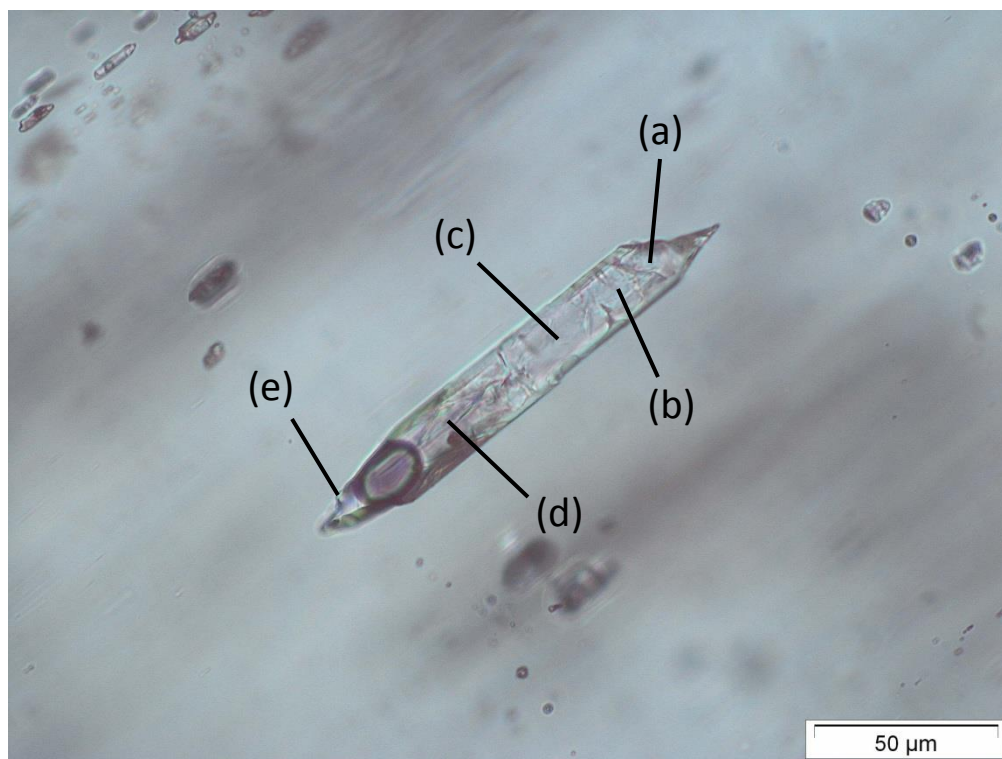
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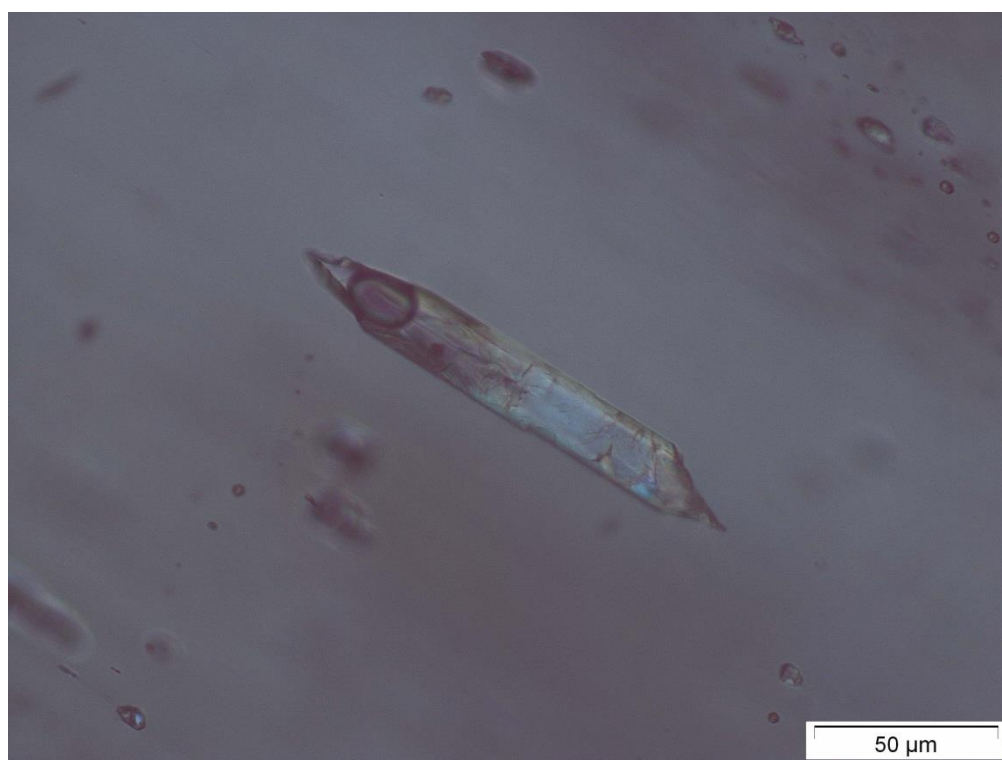
**S98090-13xpl**

Inclusion: S98090-13





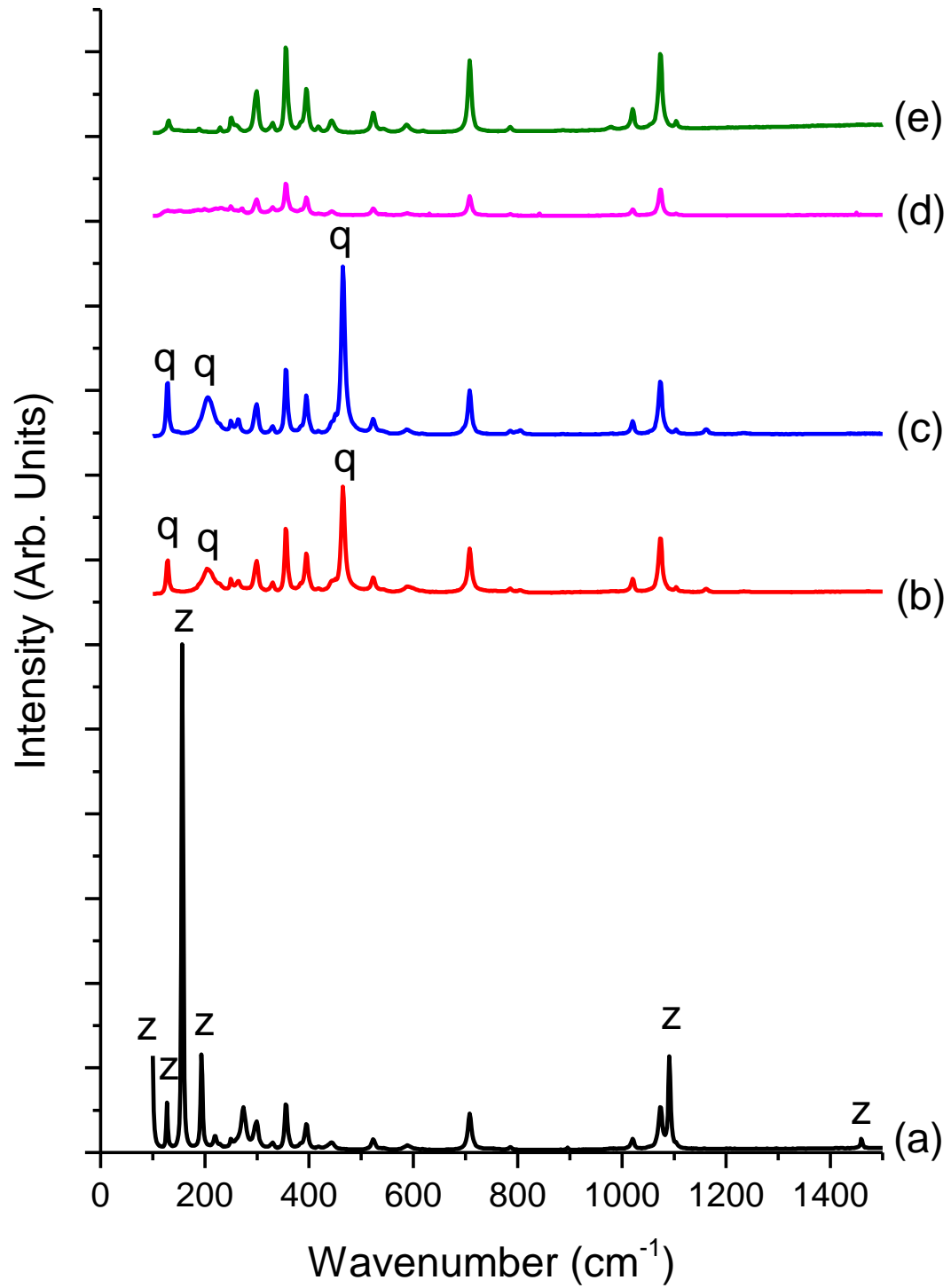
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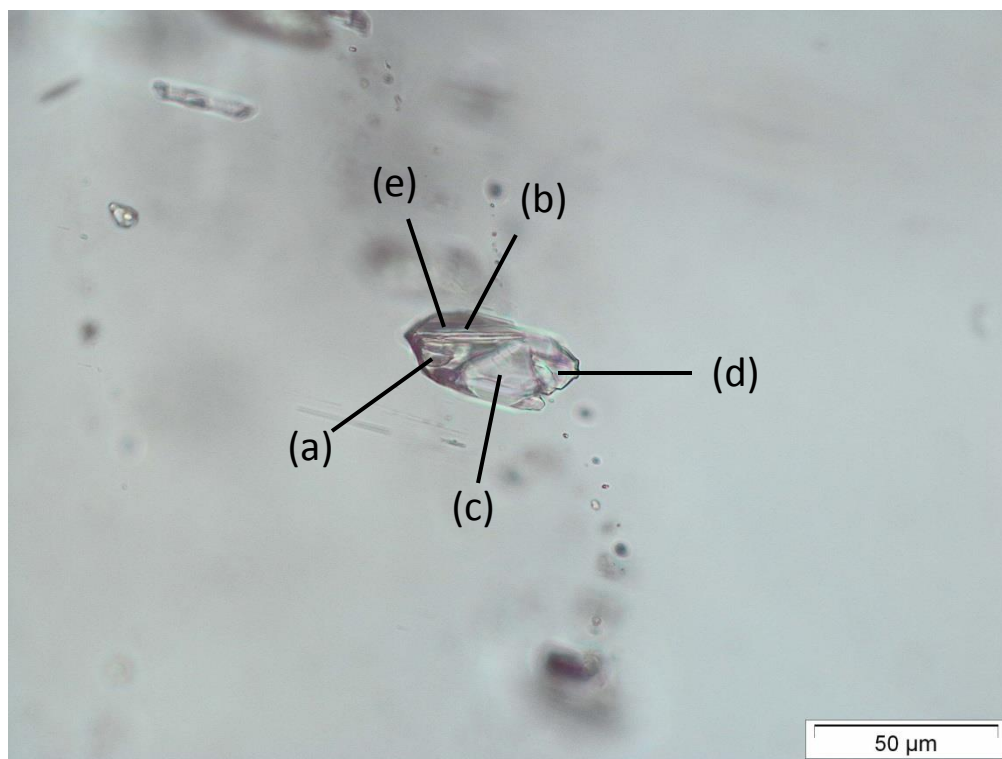


**S98090-14xp**

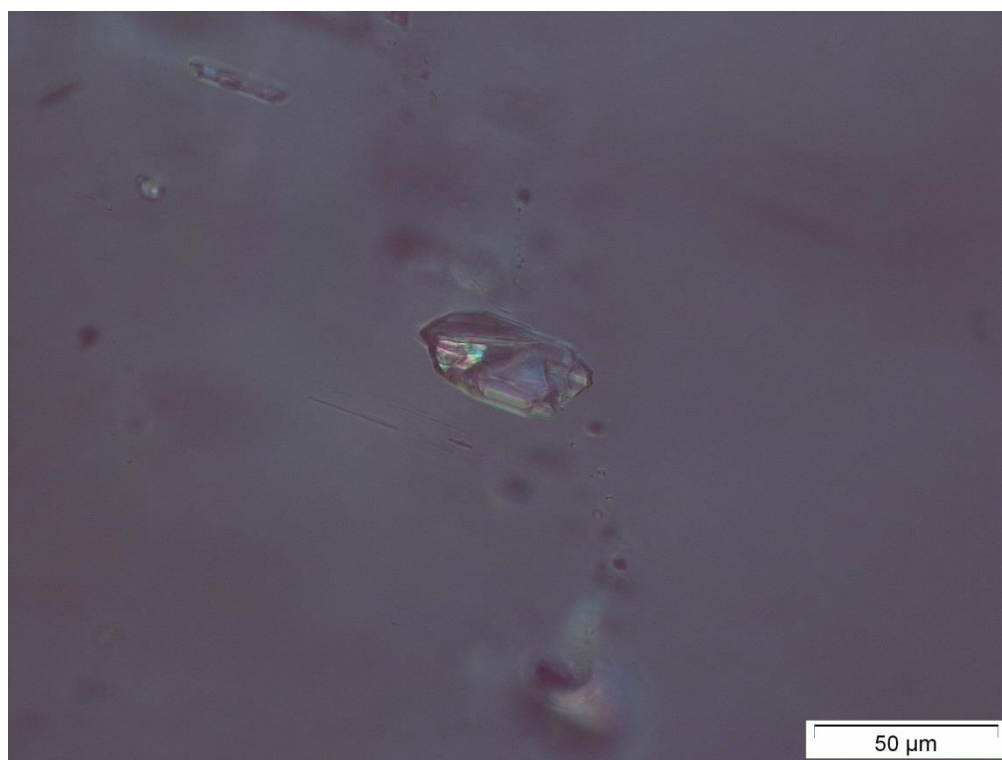


Inclusion: S98090-14

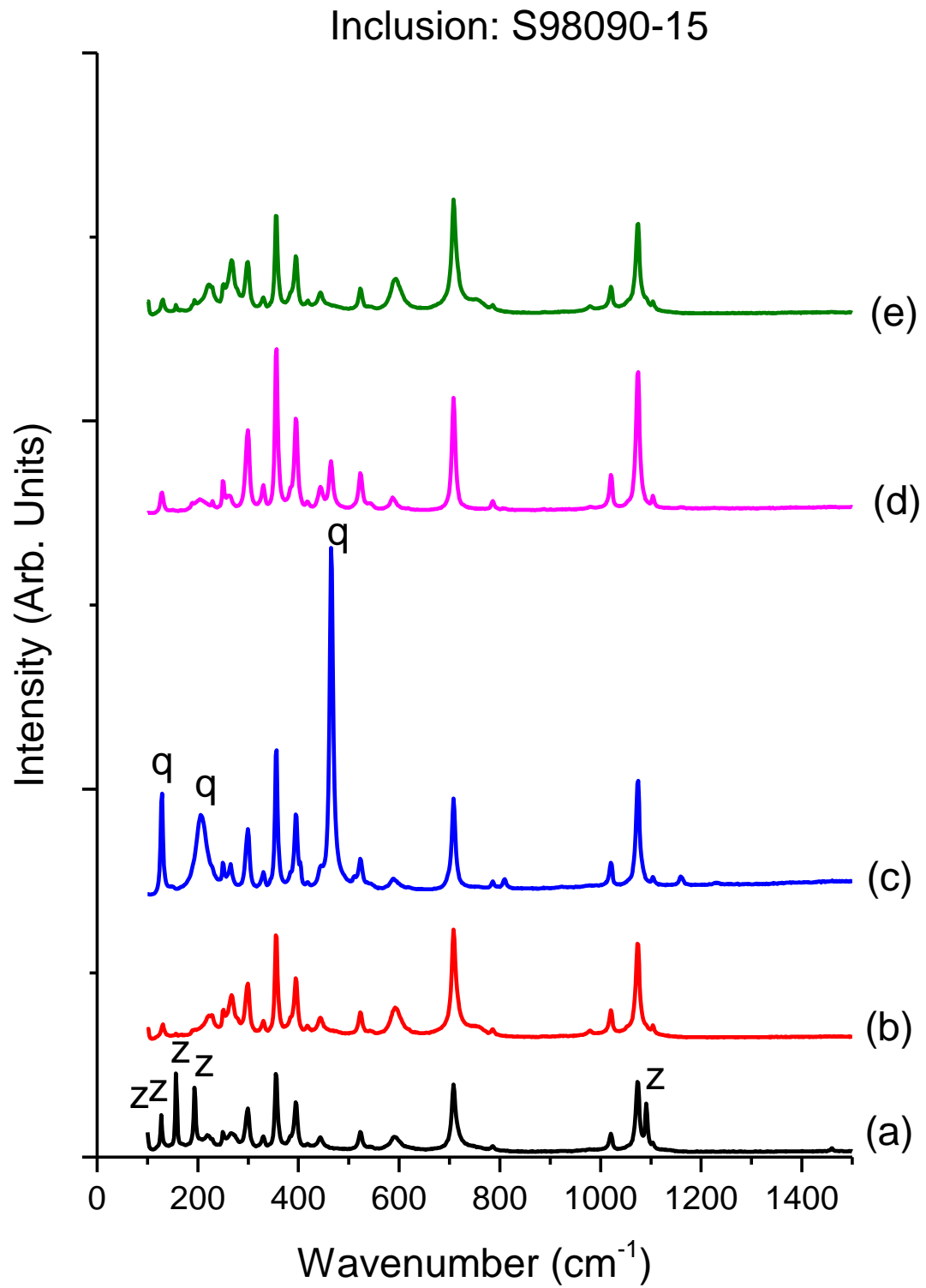


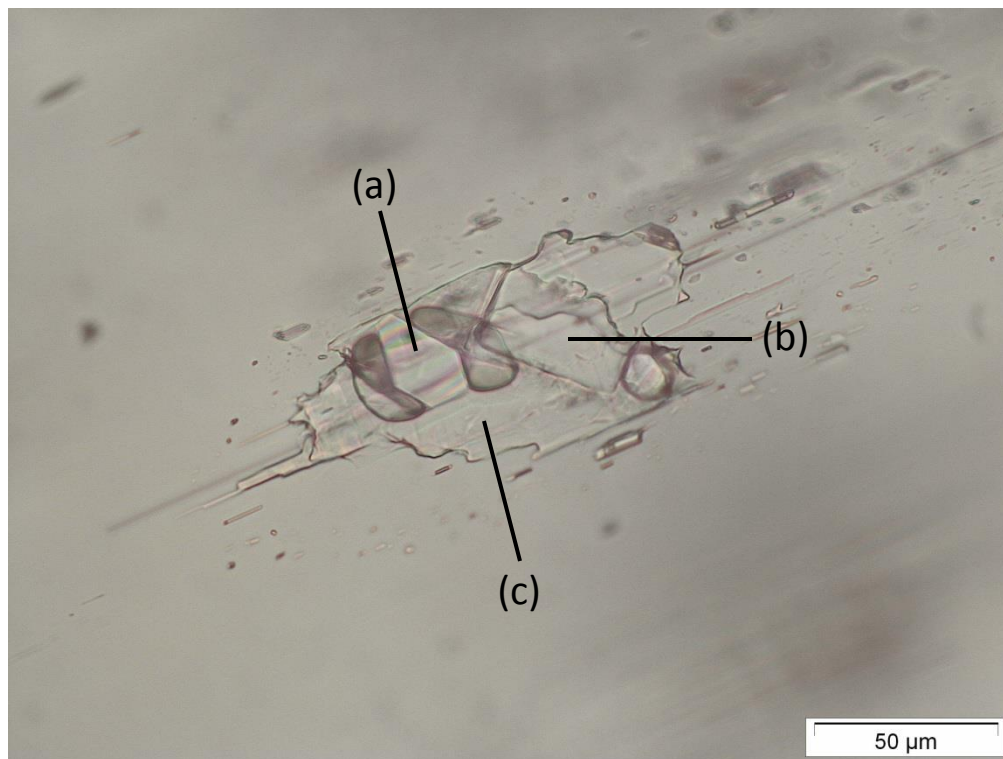


**S98090-15ppl**

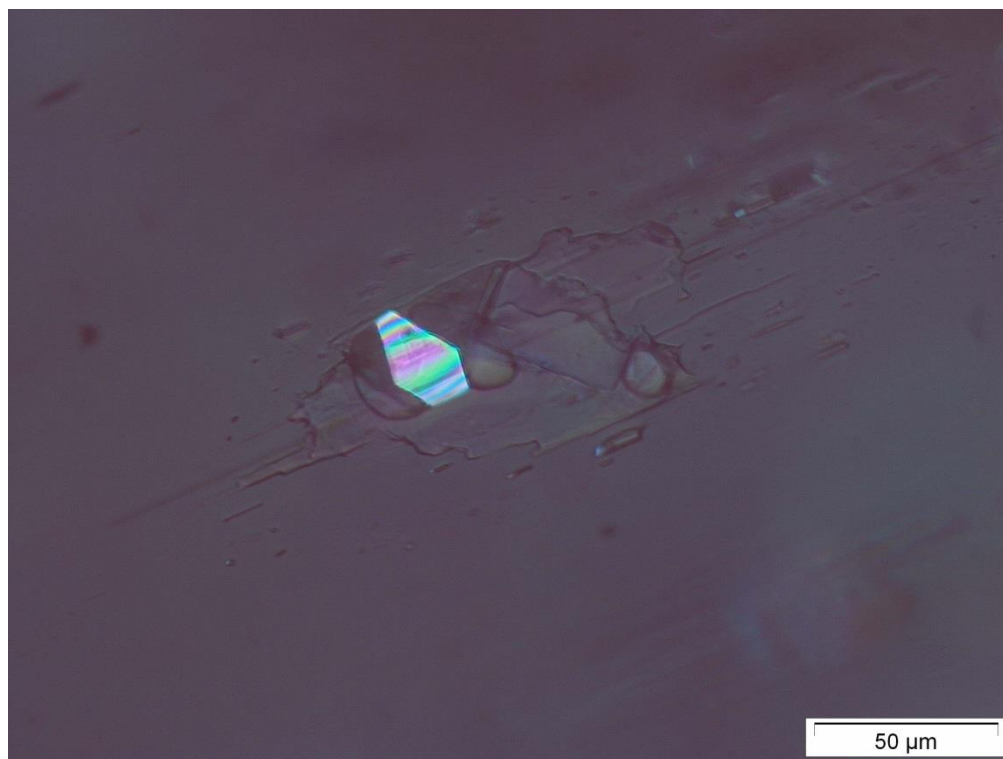


**S98090-15xpl**



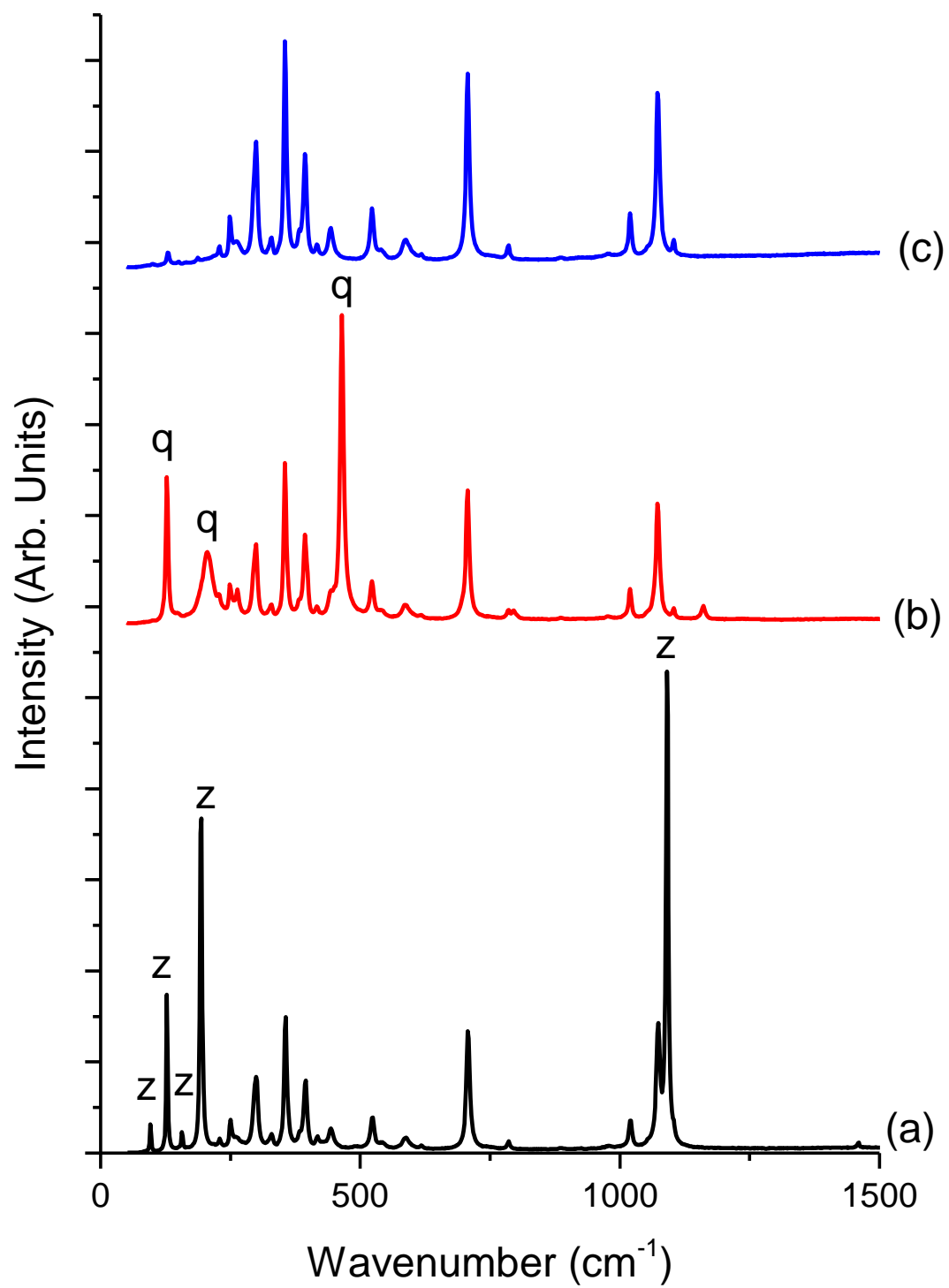


**B98090-16ppl**

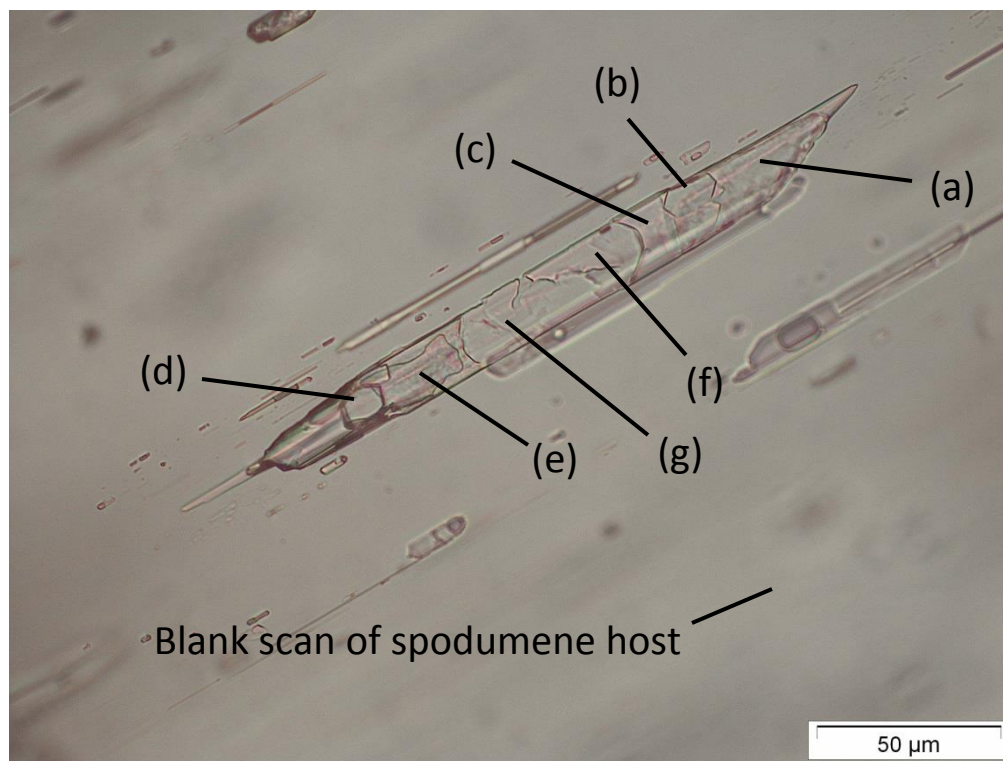


**B98090-16xpl**

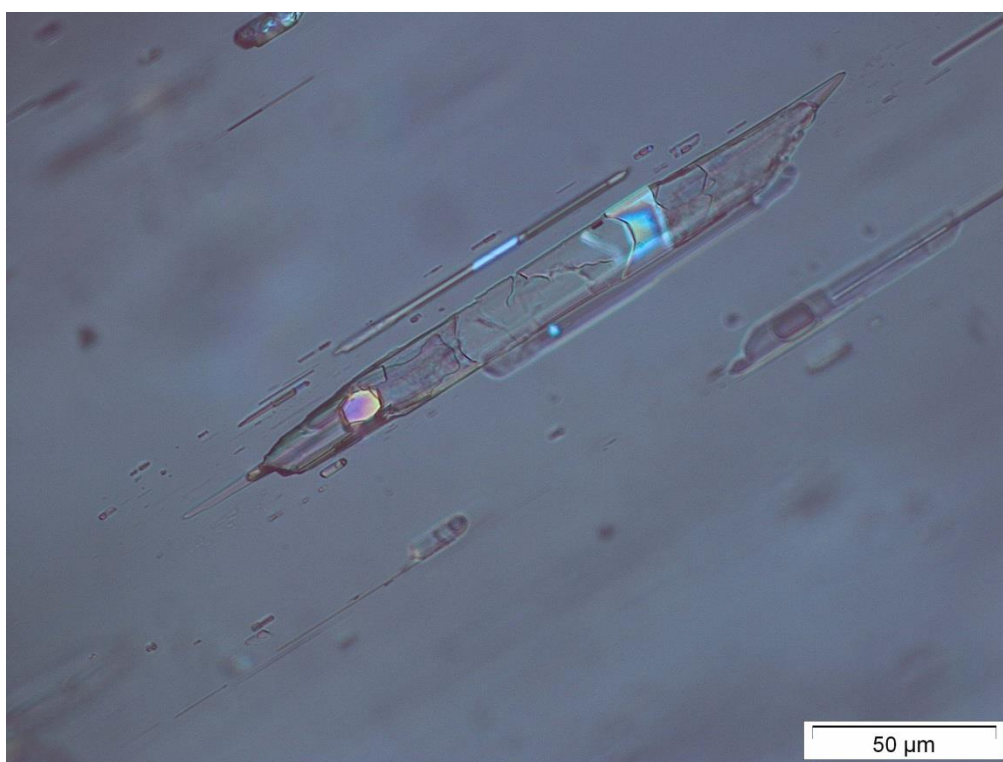
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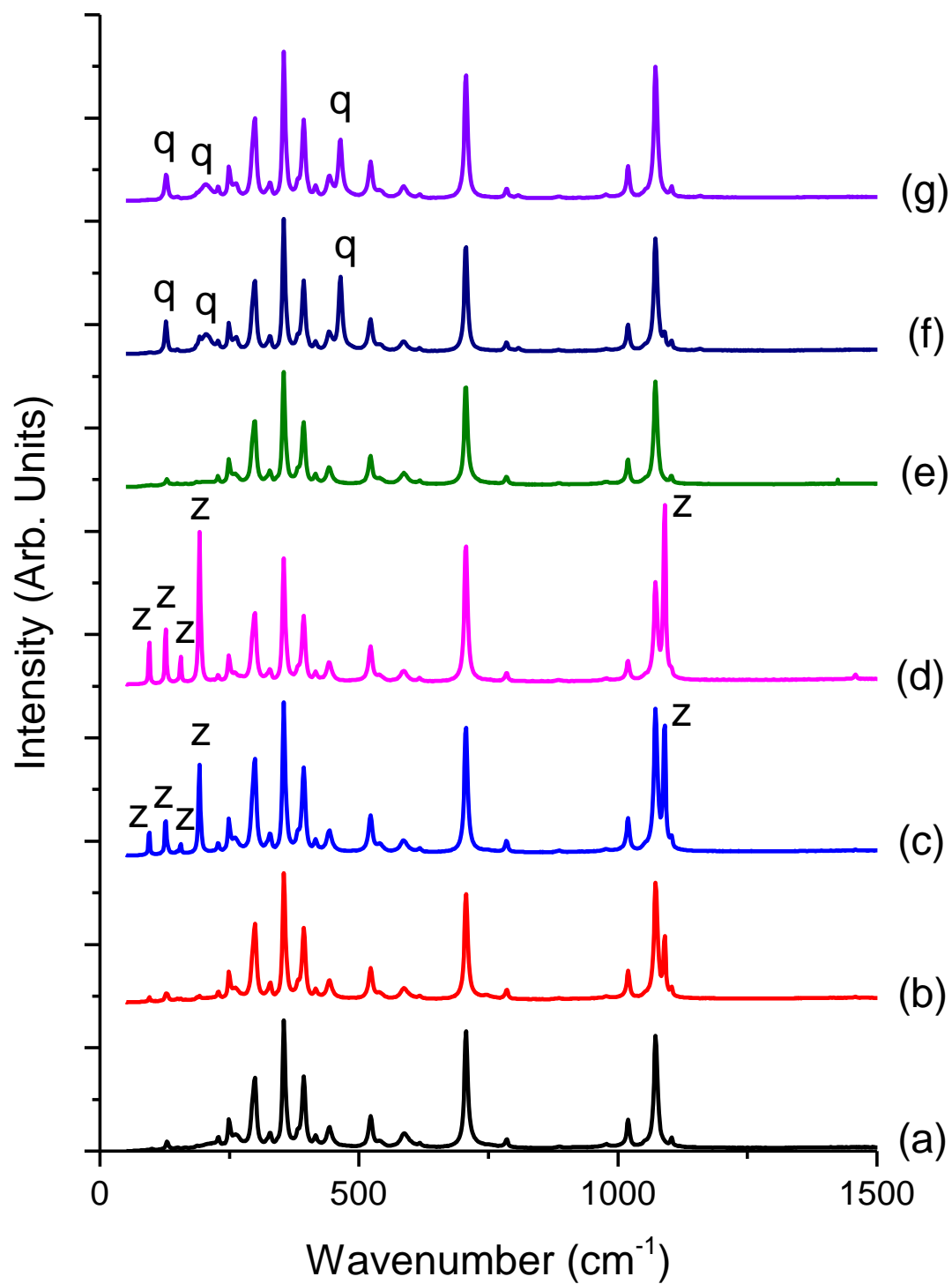


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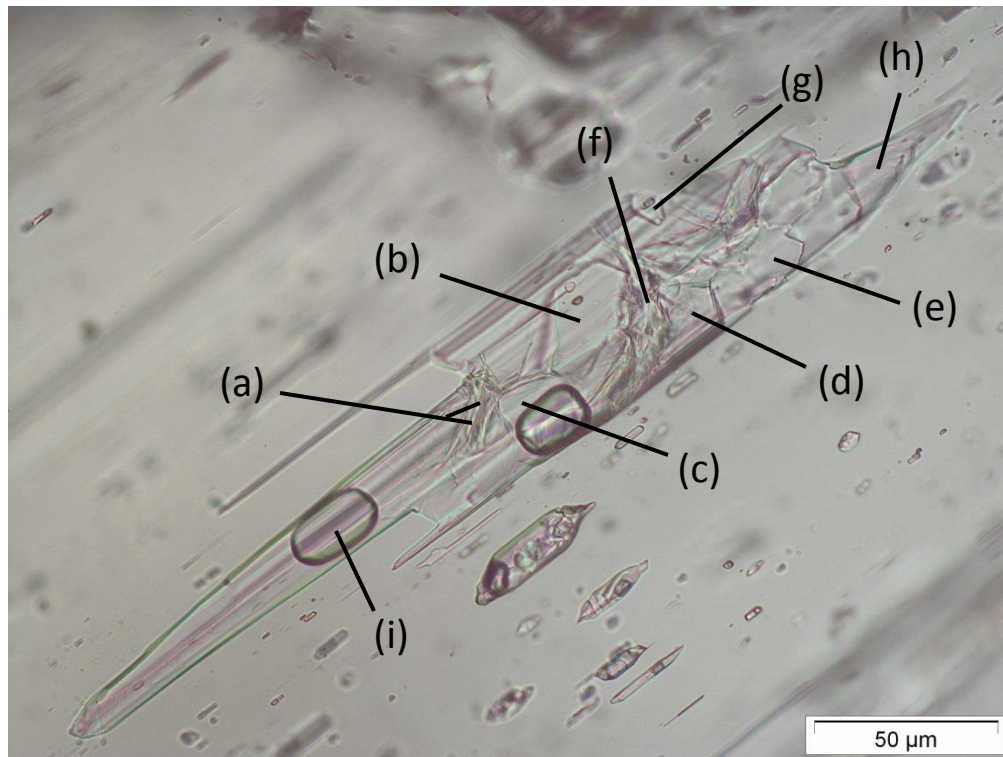


**B98090-17xpl**

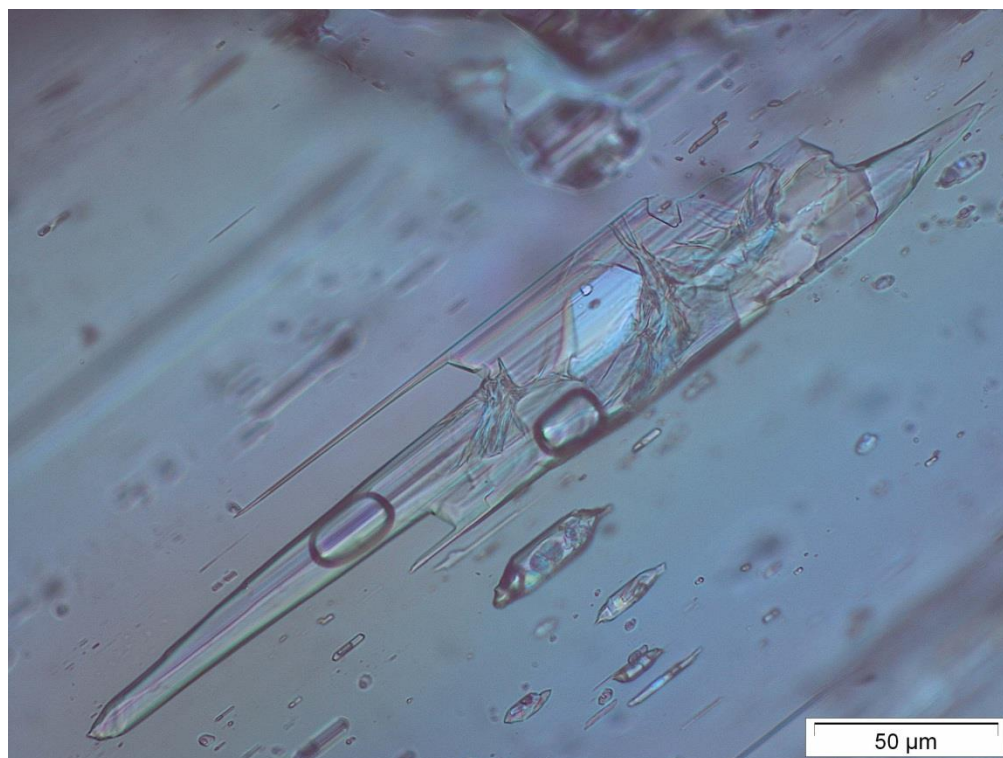
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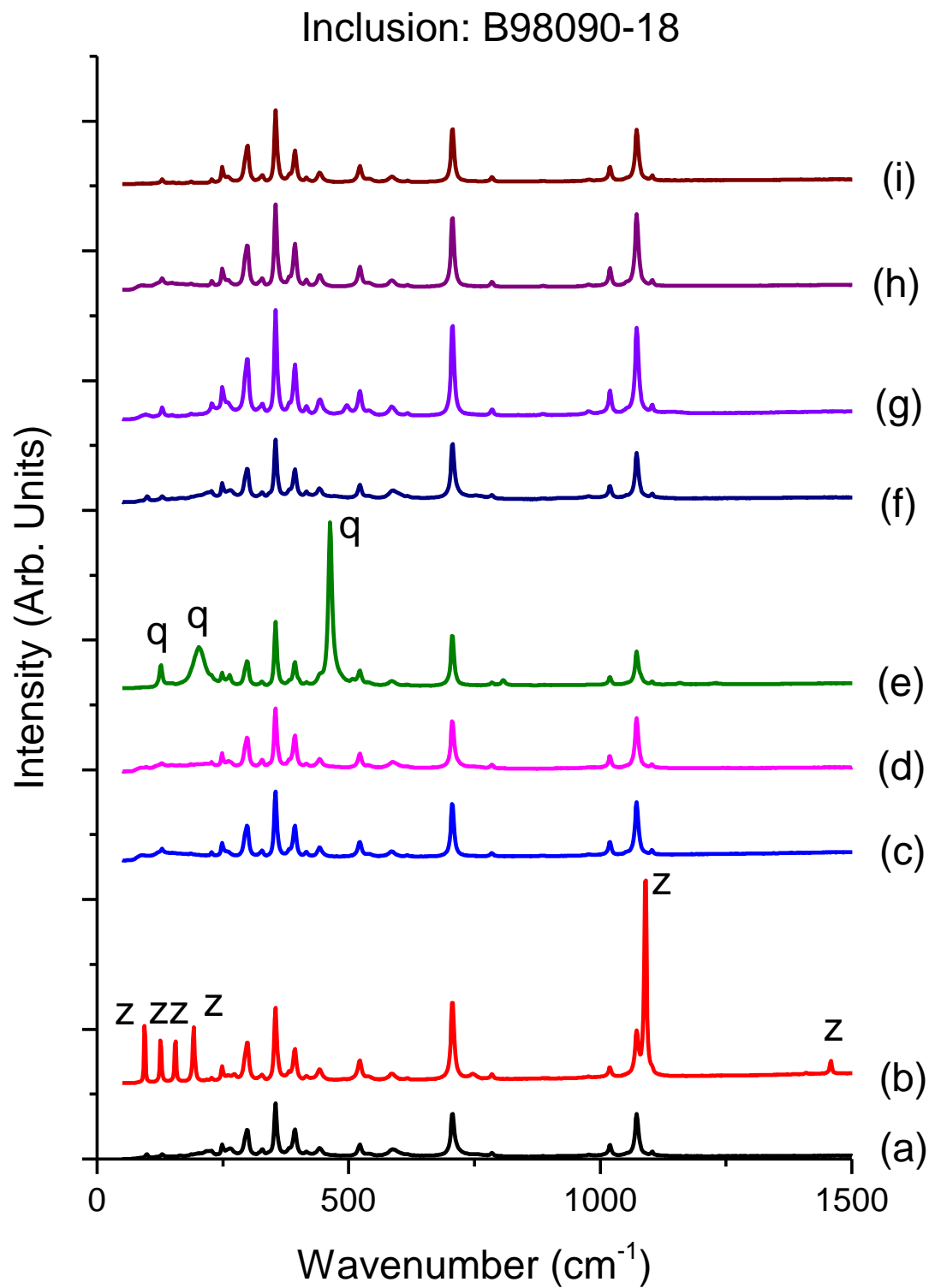
Note: (a), (b) and (e) produce an OH band at 3641cm<sup>-1</sup>



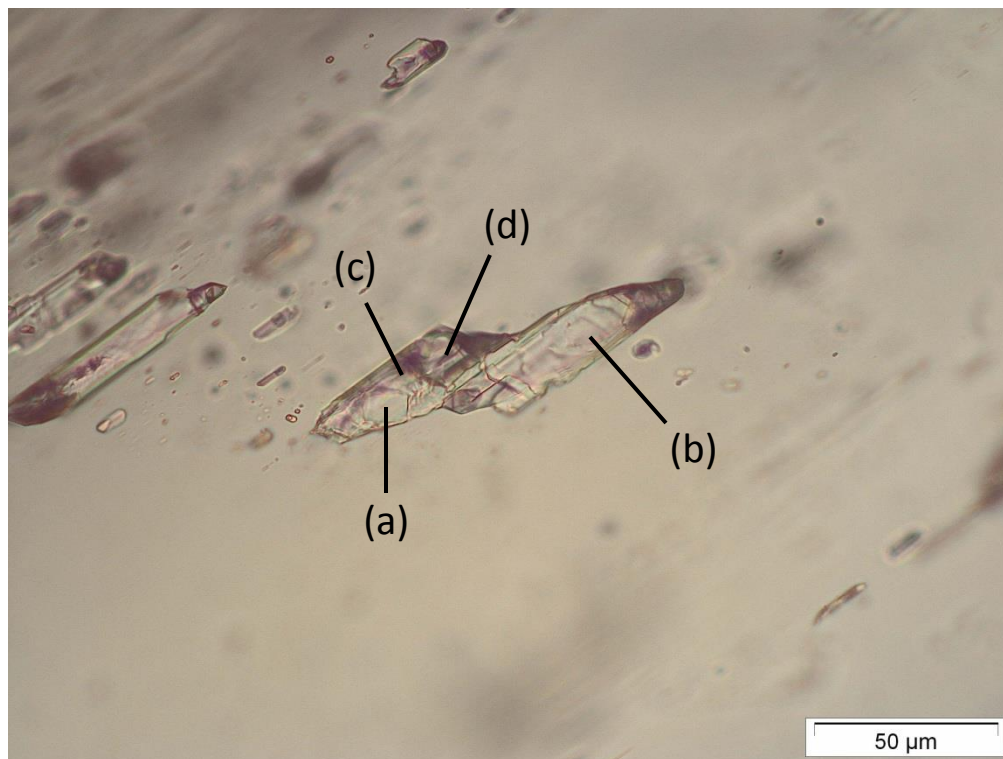
**B98090-18ppl**



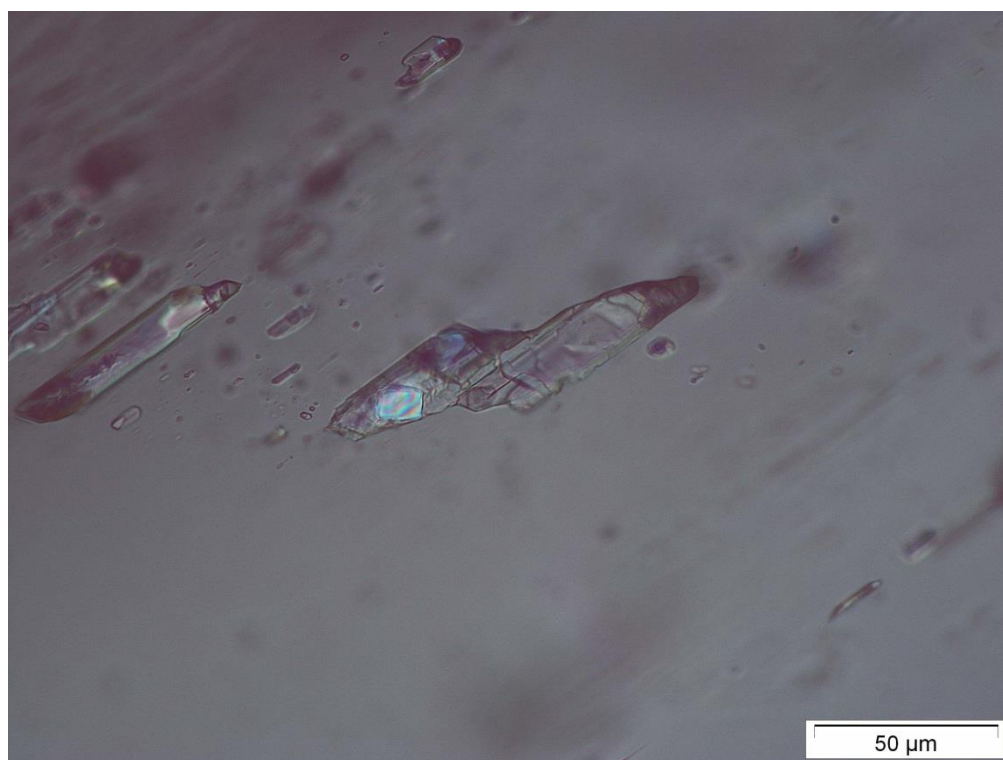
**B98090-18xpl**







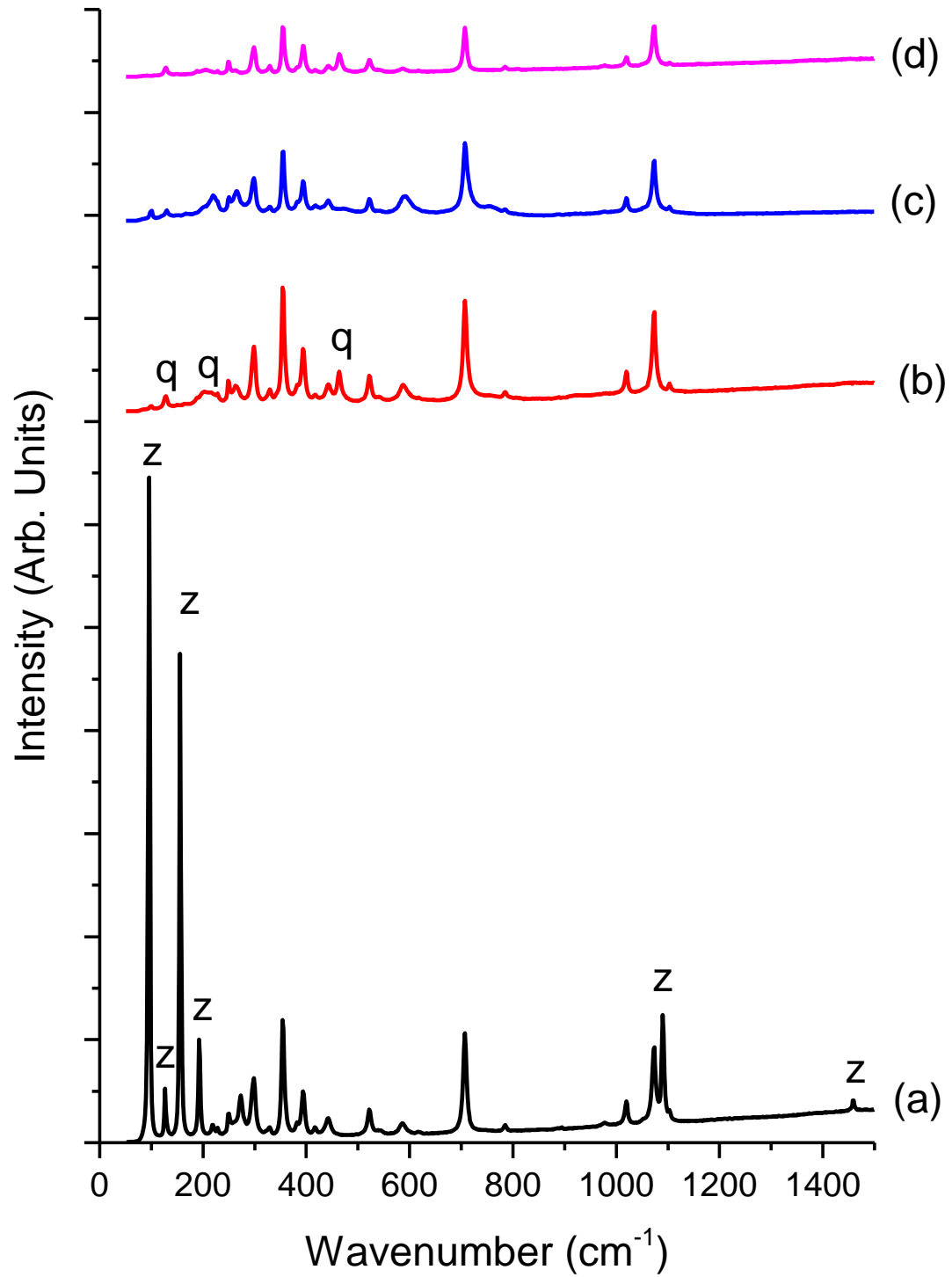
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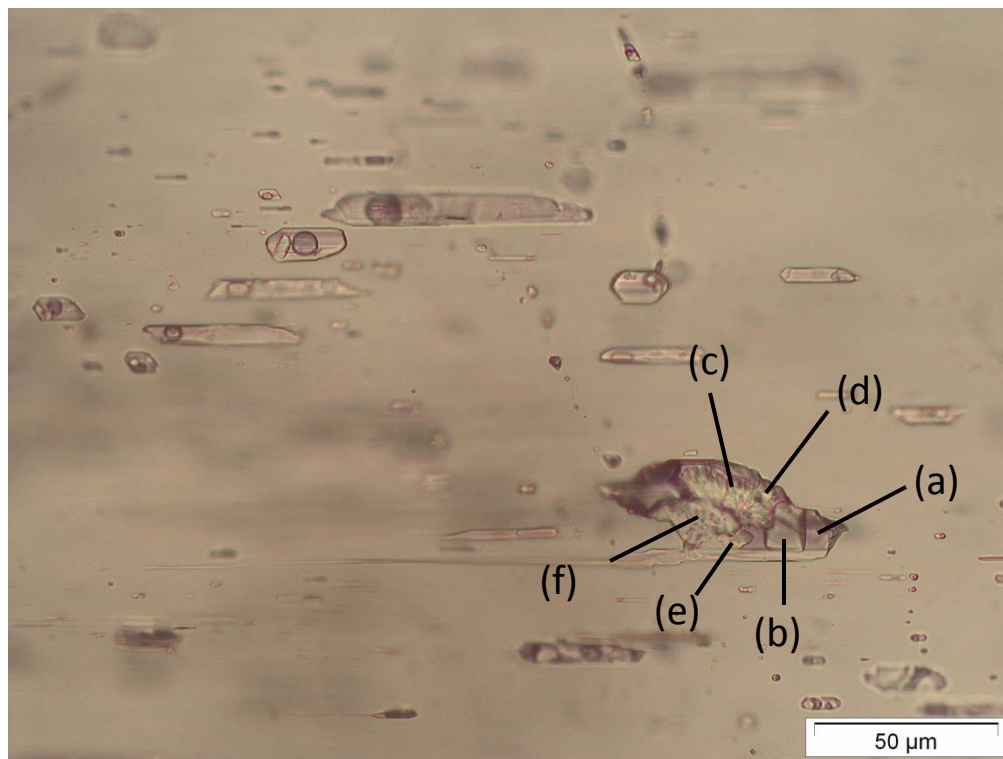


**B98090-19xpl**

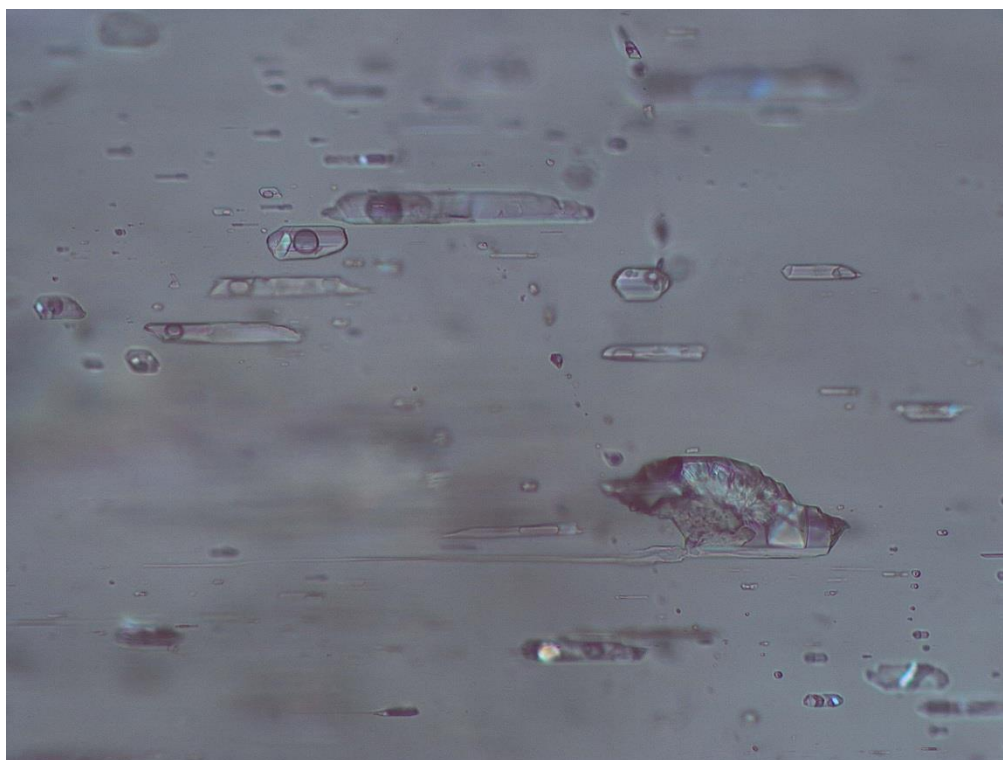


Inclusion: B98090-19

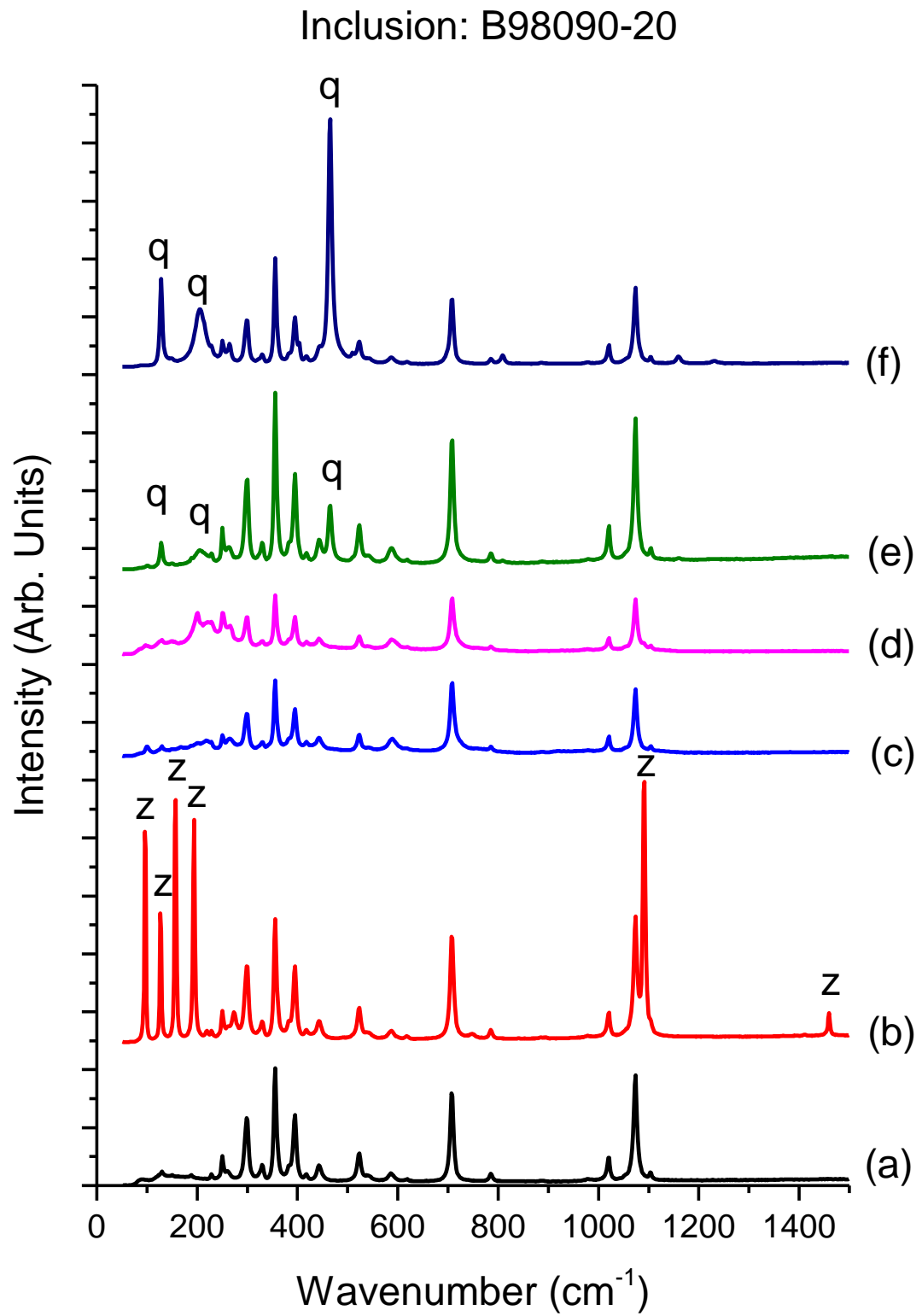


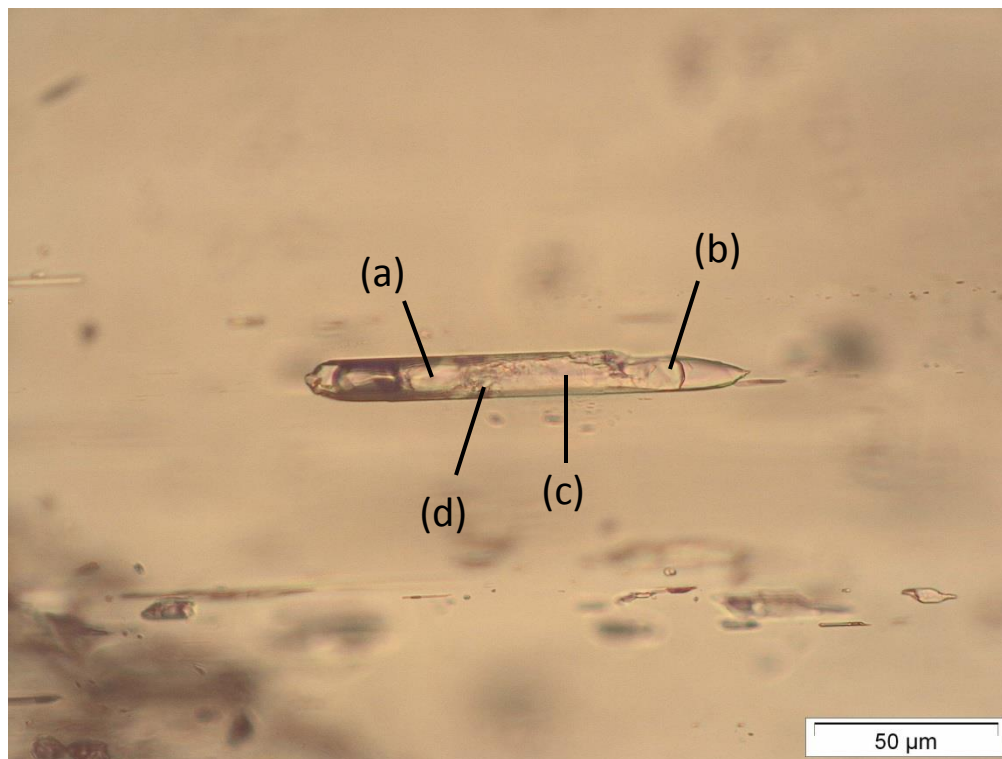


**B98090-20ppl**

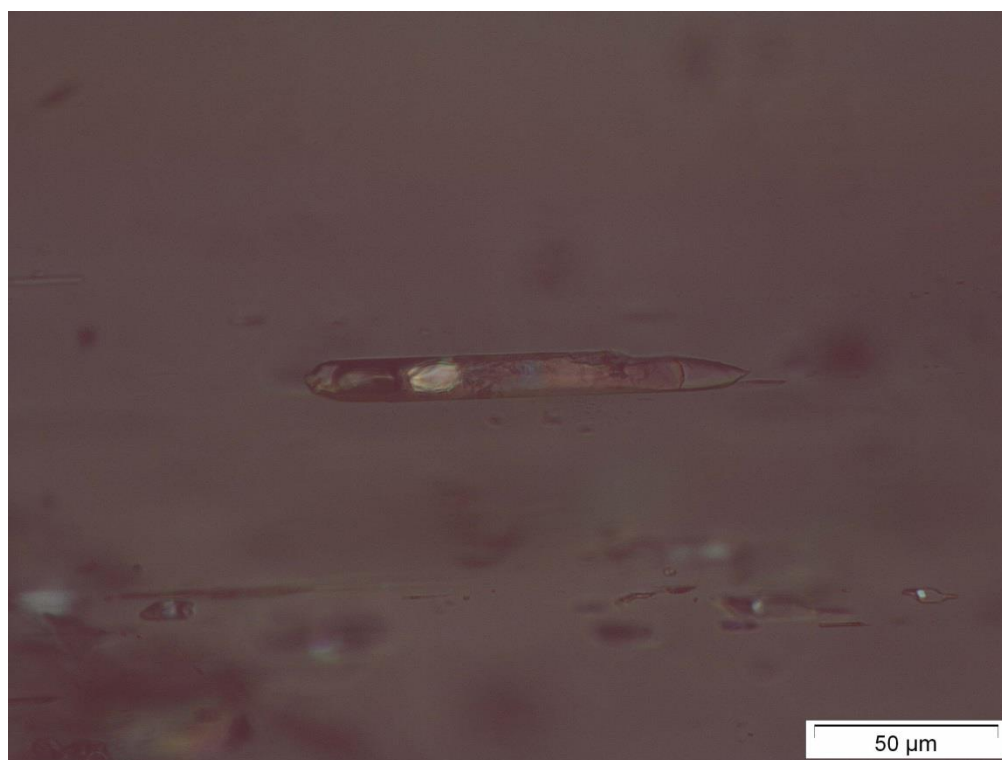


**B98090-20xpl**



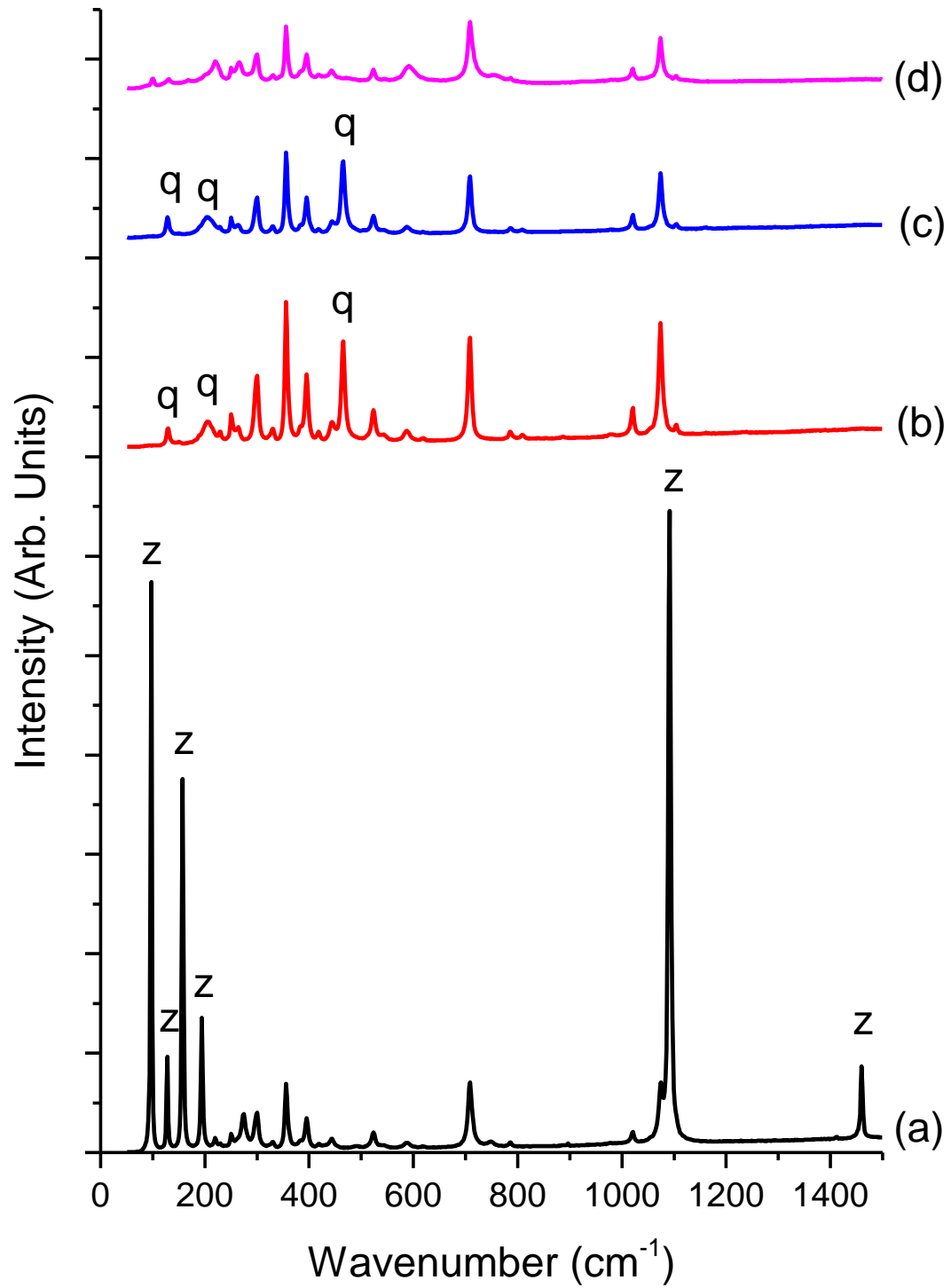


**B98090-21ppl**

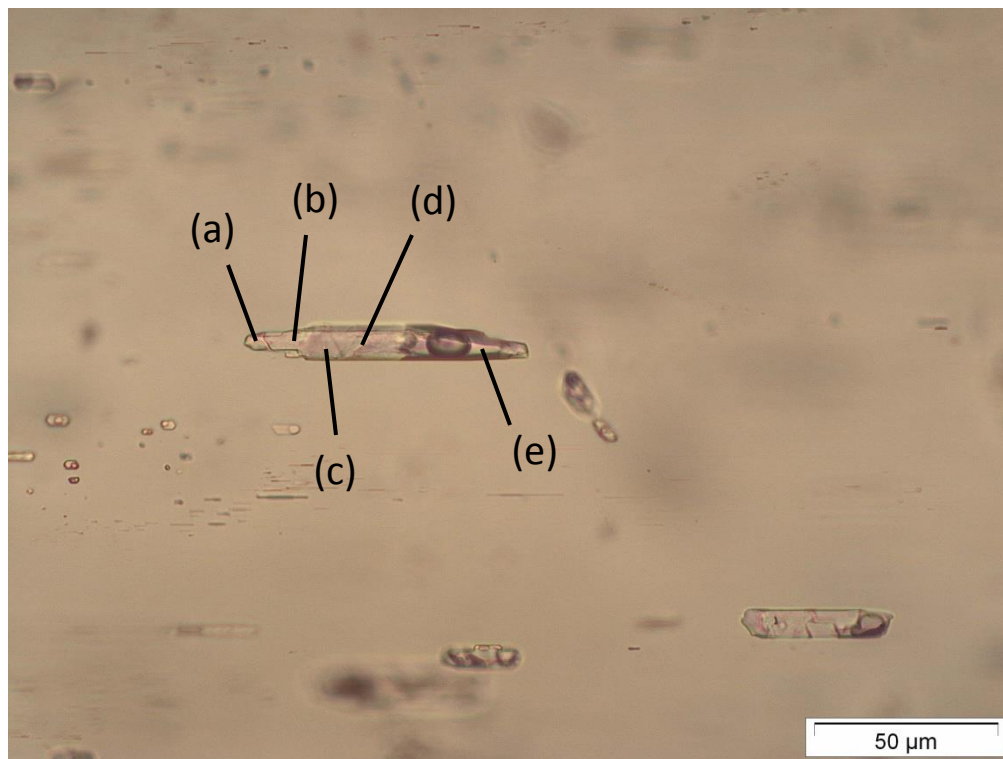


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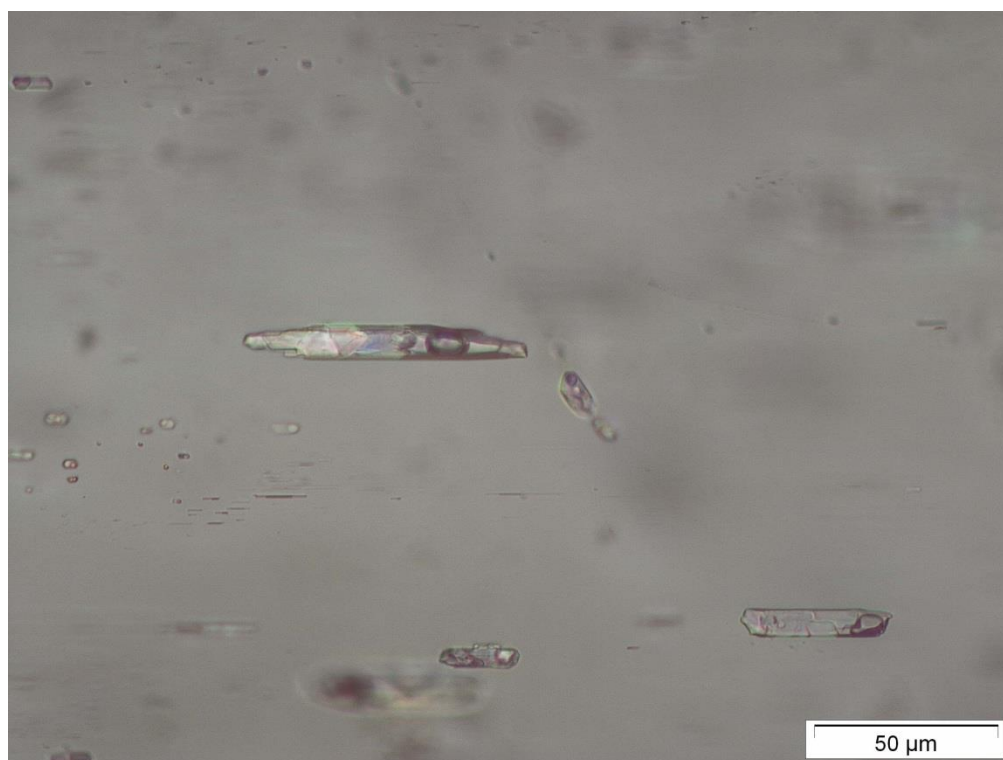
Inclusion: B98090-21





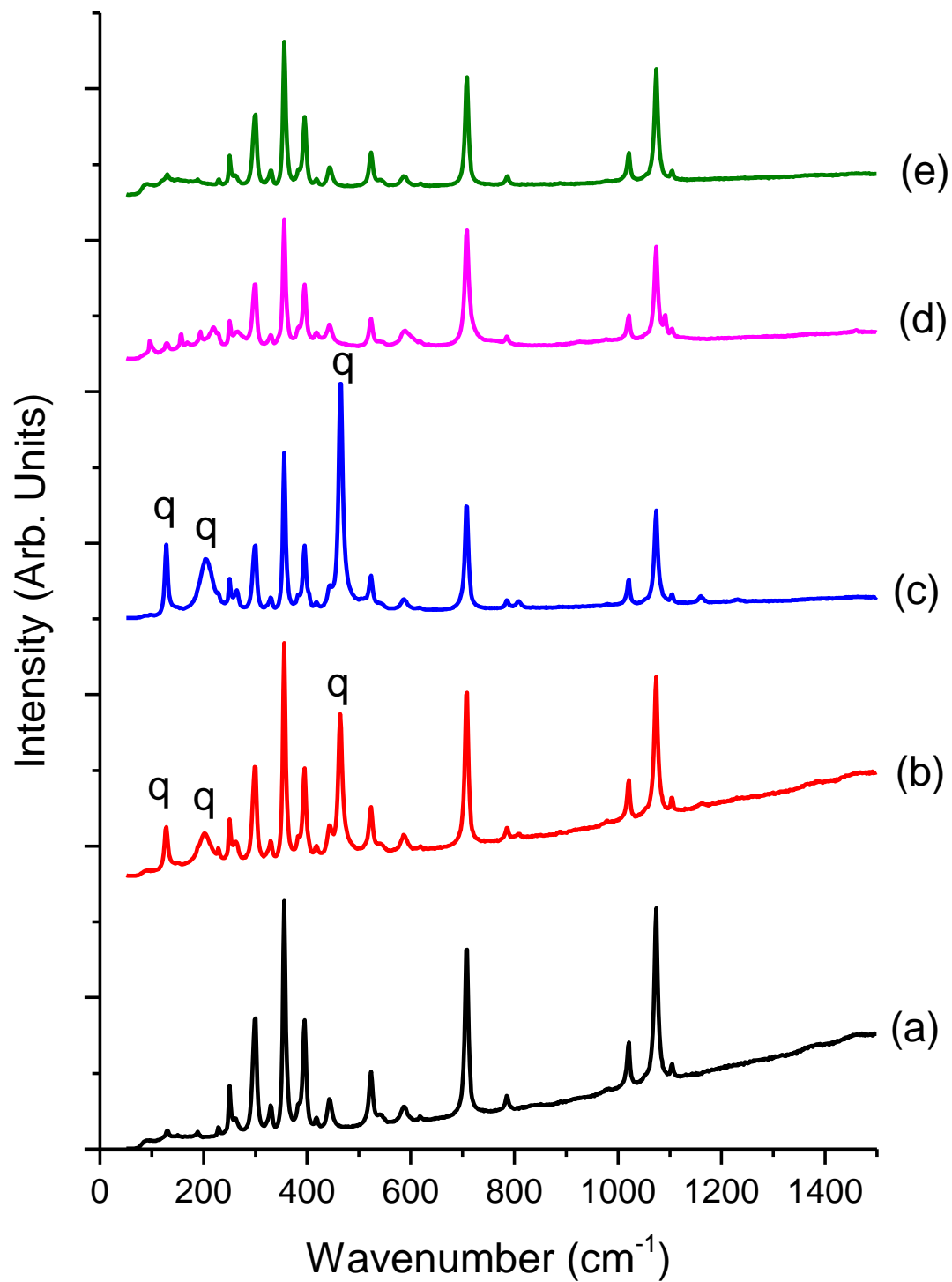


**B98090-22ppl**

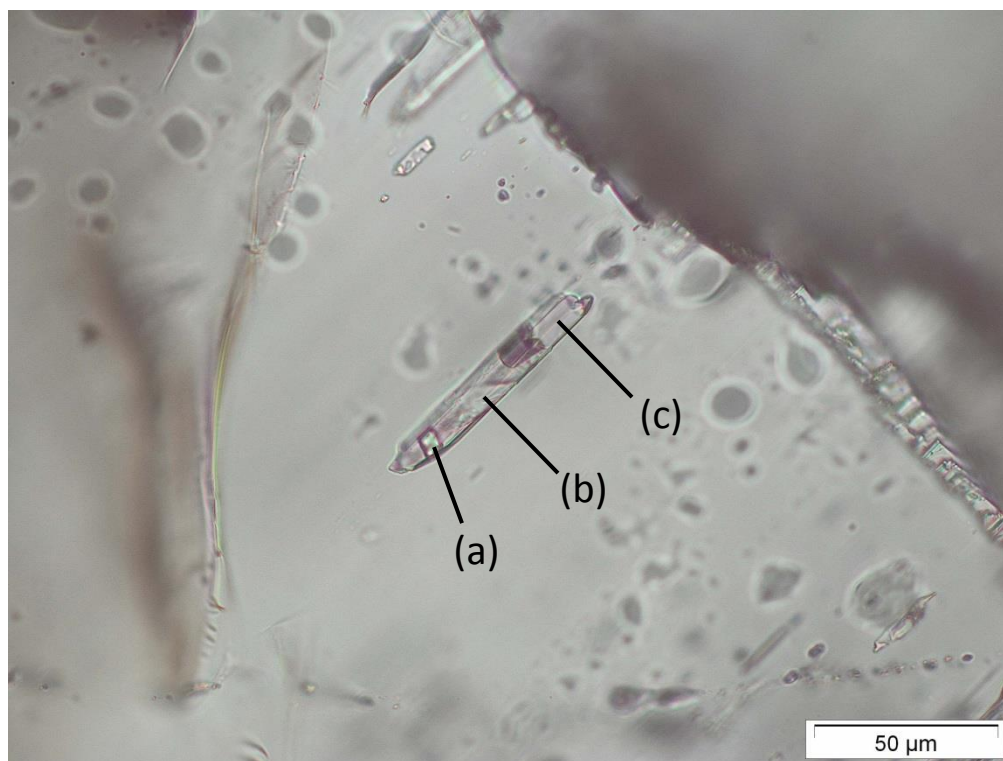


**B98090-22xpl**

Inclusion: B98090-22



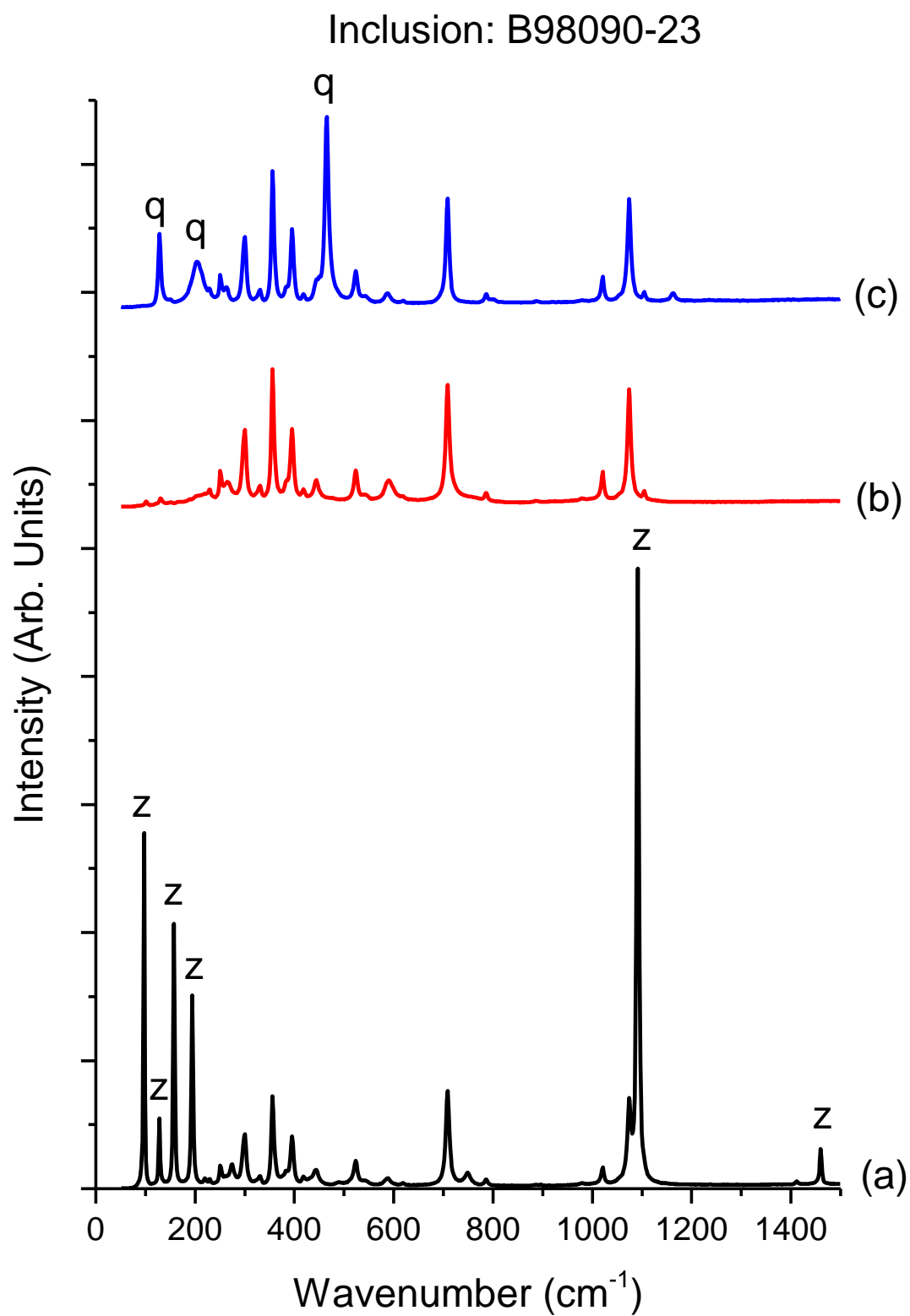
Note: (d) produces an OH peak at 3641cm<sup>-1</sup>

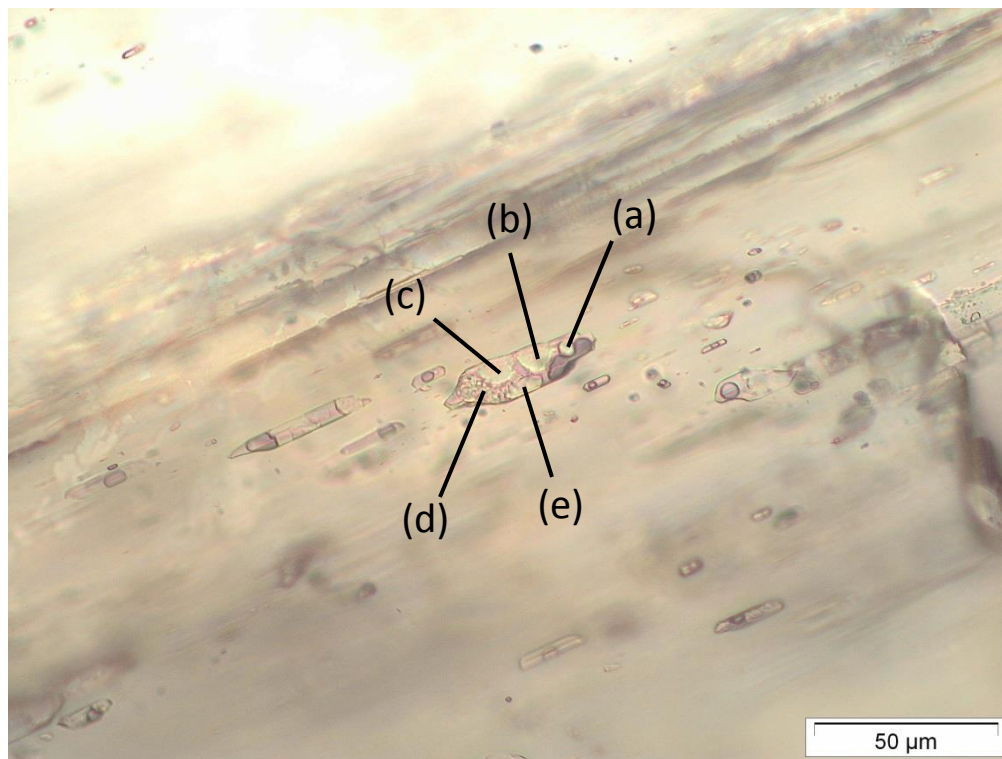


**B98090-23ppl**

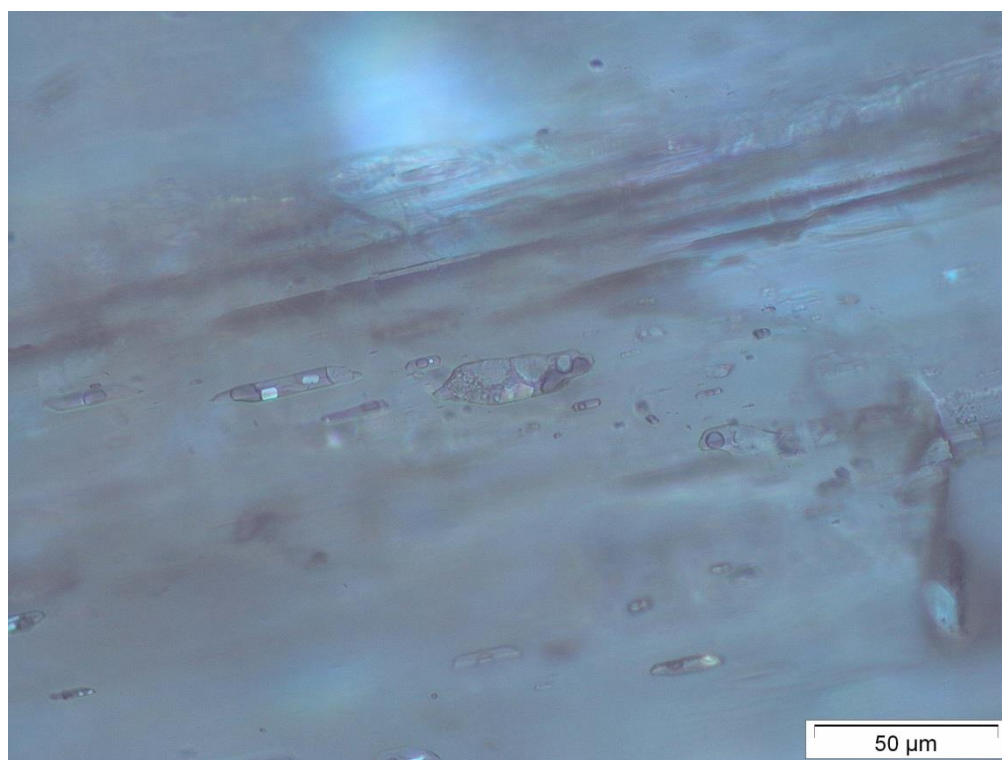


**B98090-23xpl**





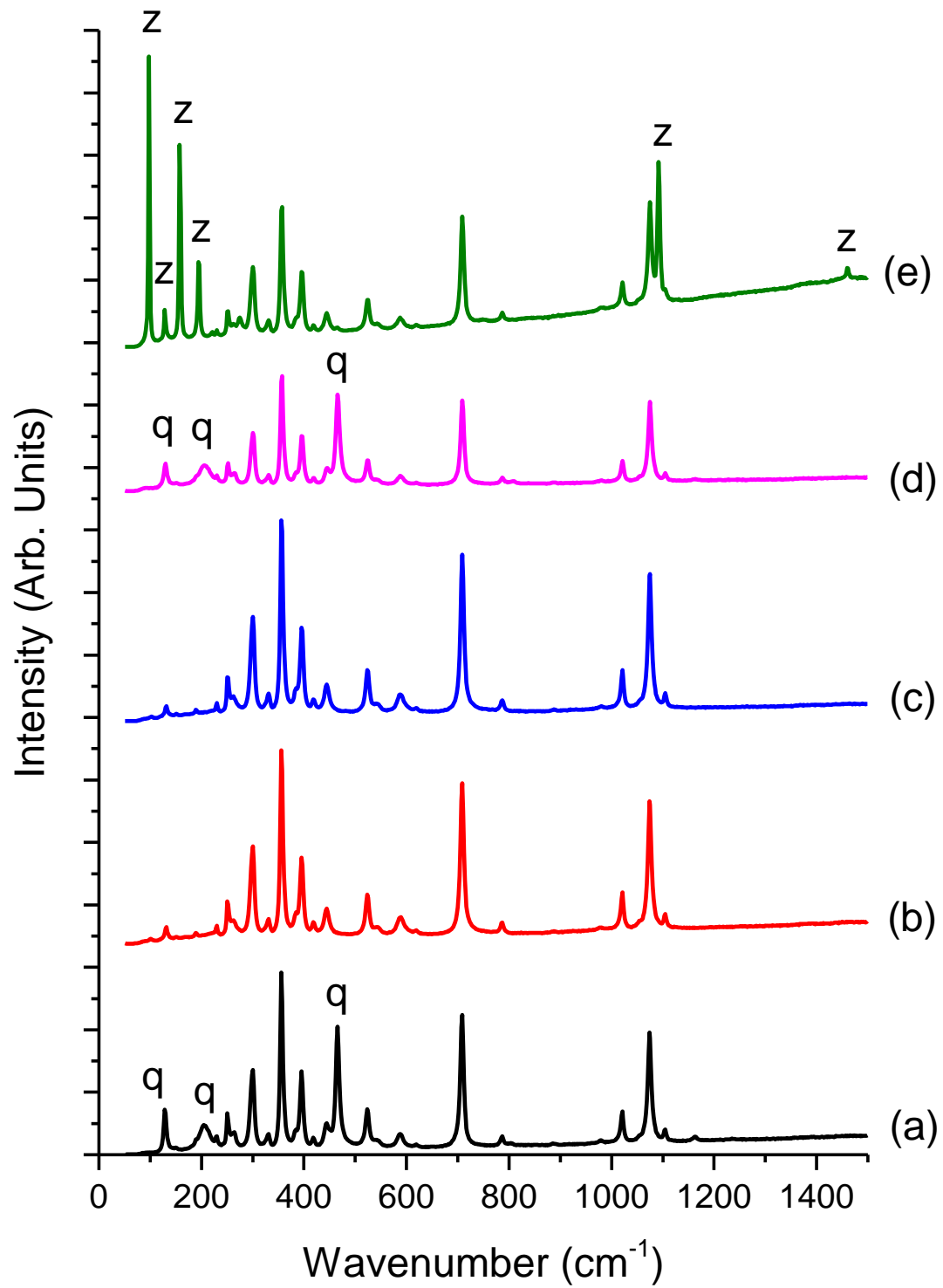
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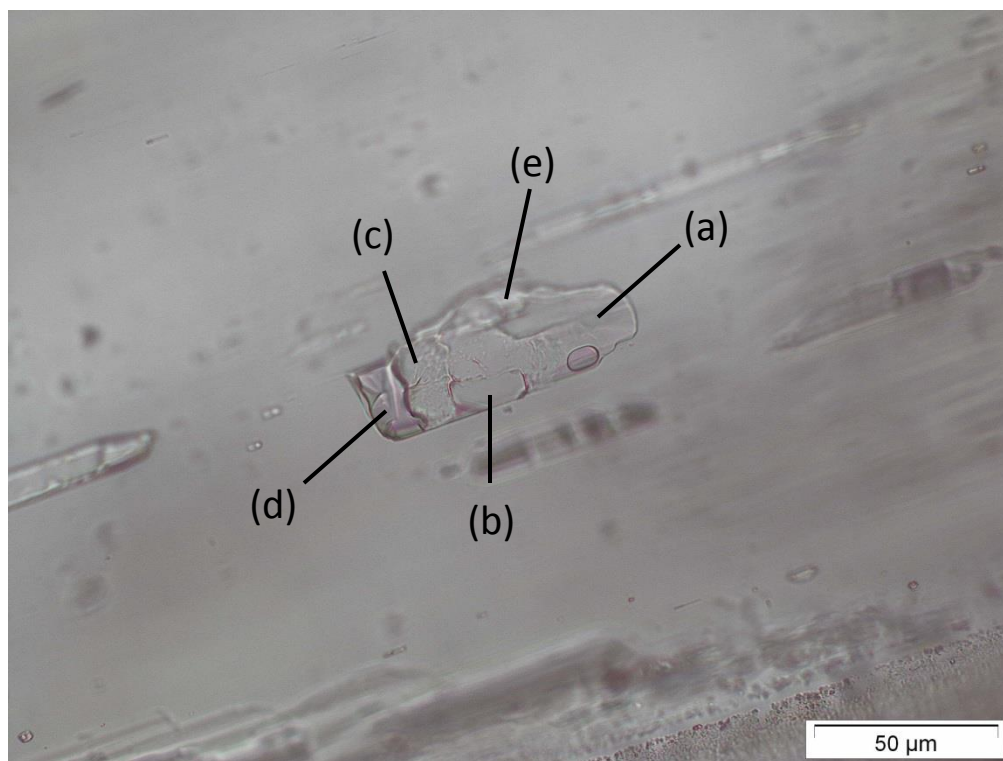


**B98090-24xpl**

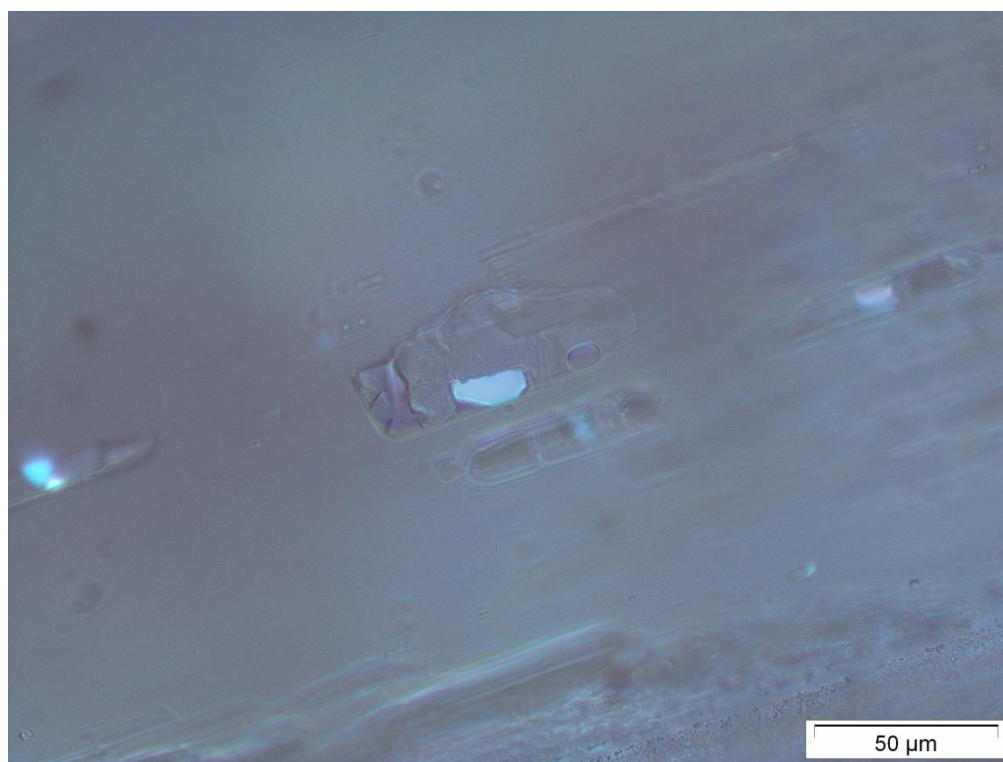


Inclusion: B98090-24



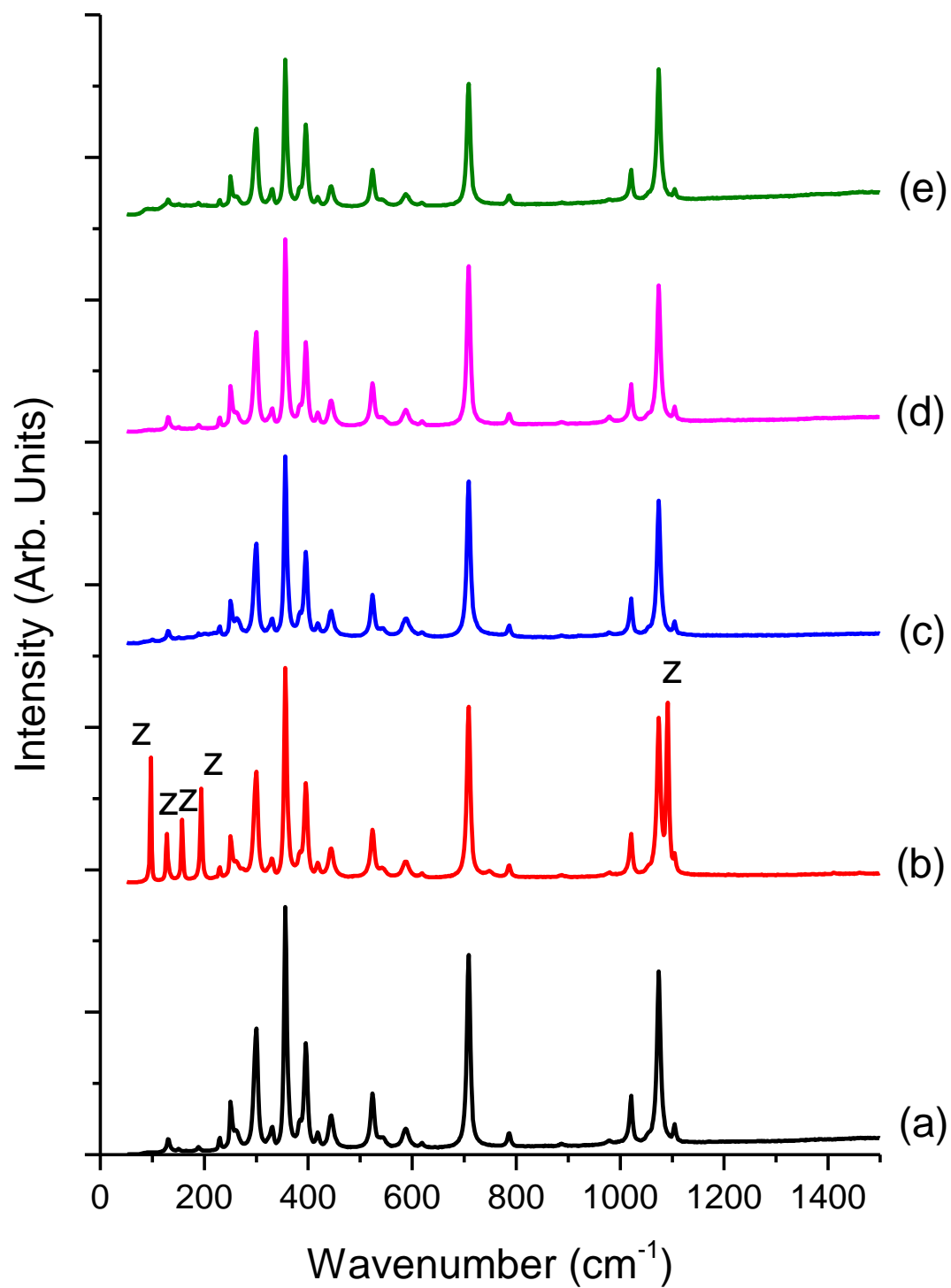


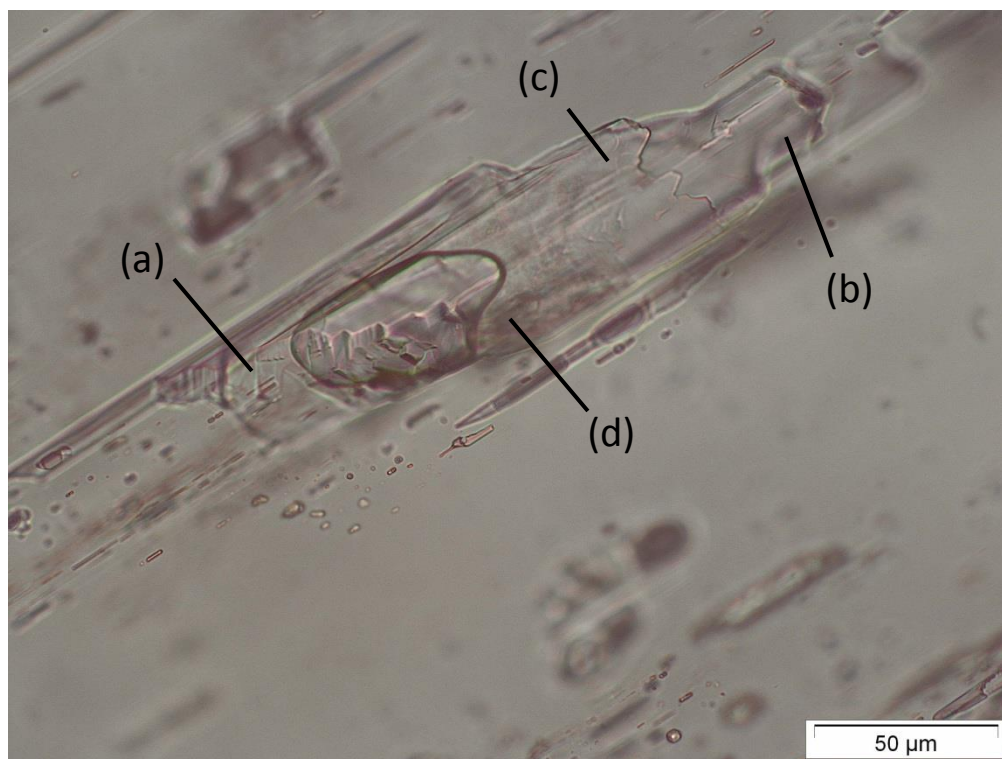
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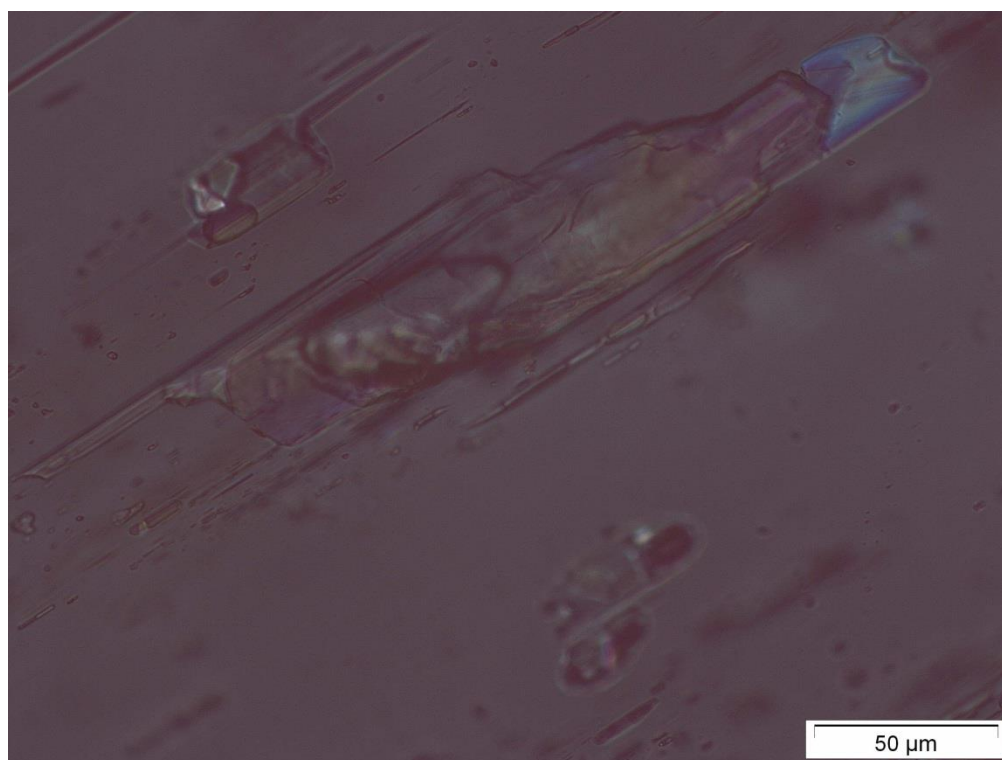
**B98090-25xpl**

Inclusion: B98090-25



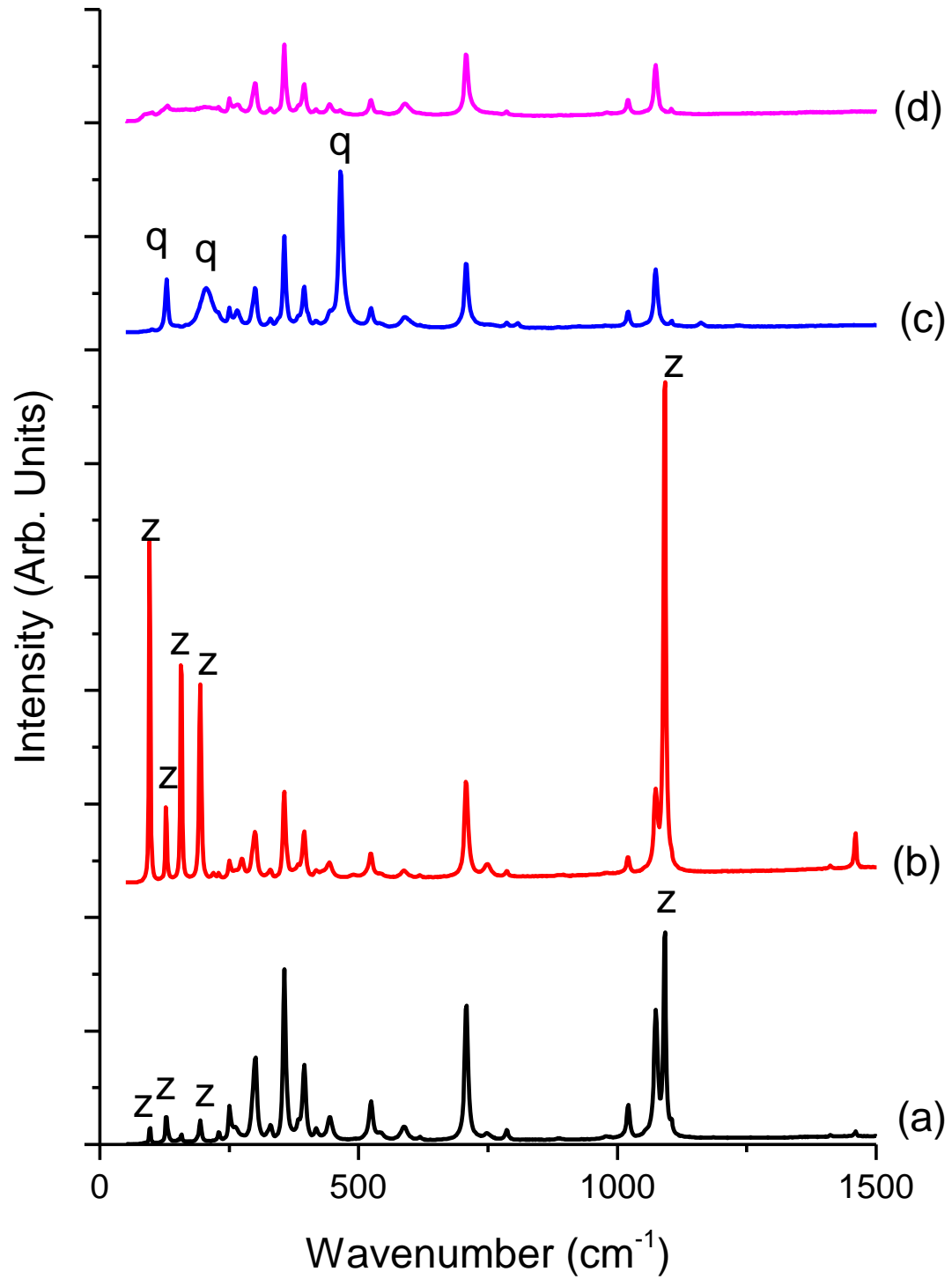


**B98090-26ppl**

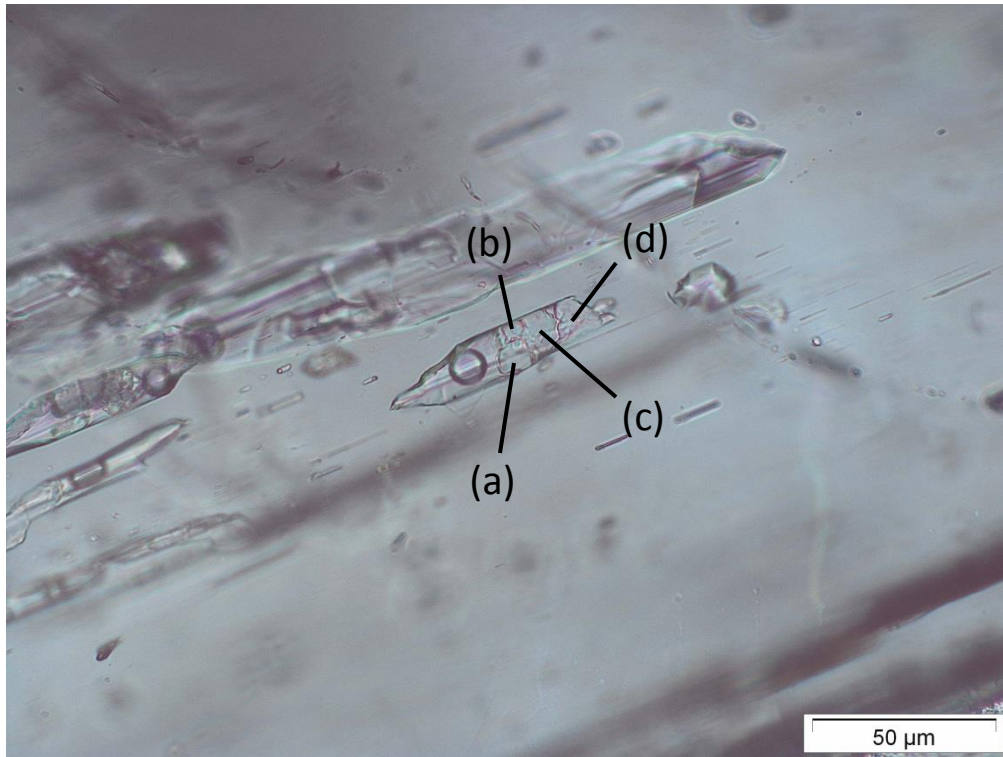


**B98090-26xpl**

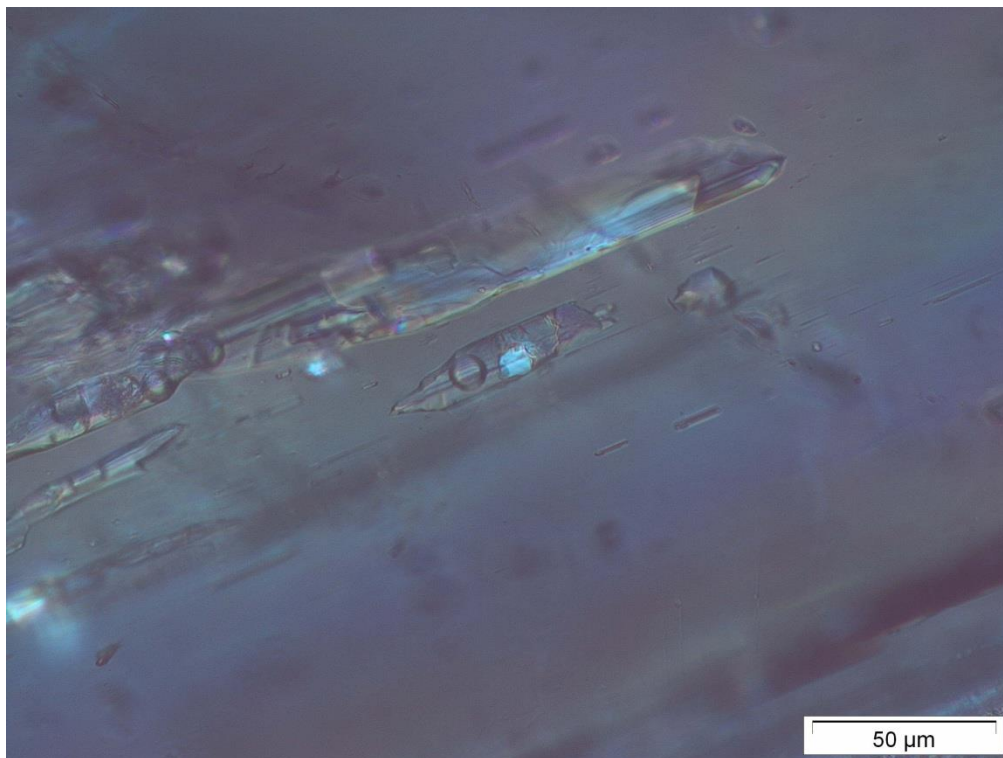
Inclusion: B98090-26





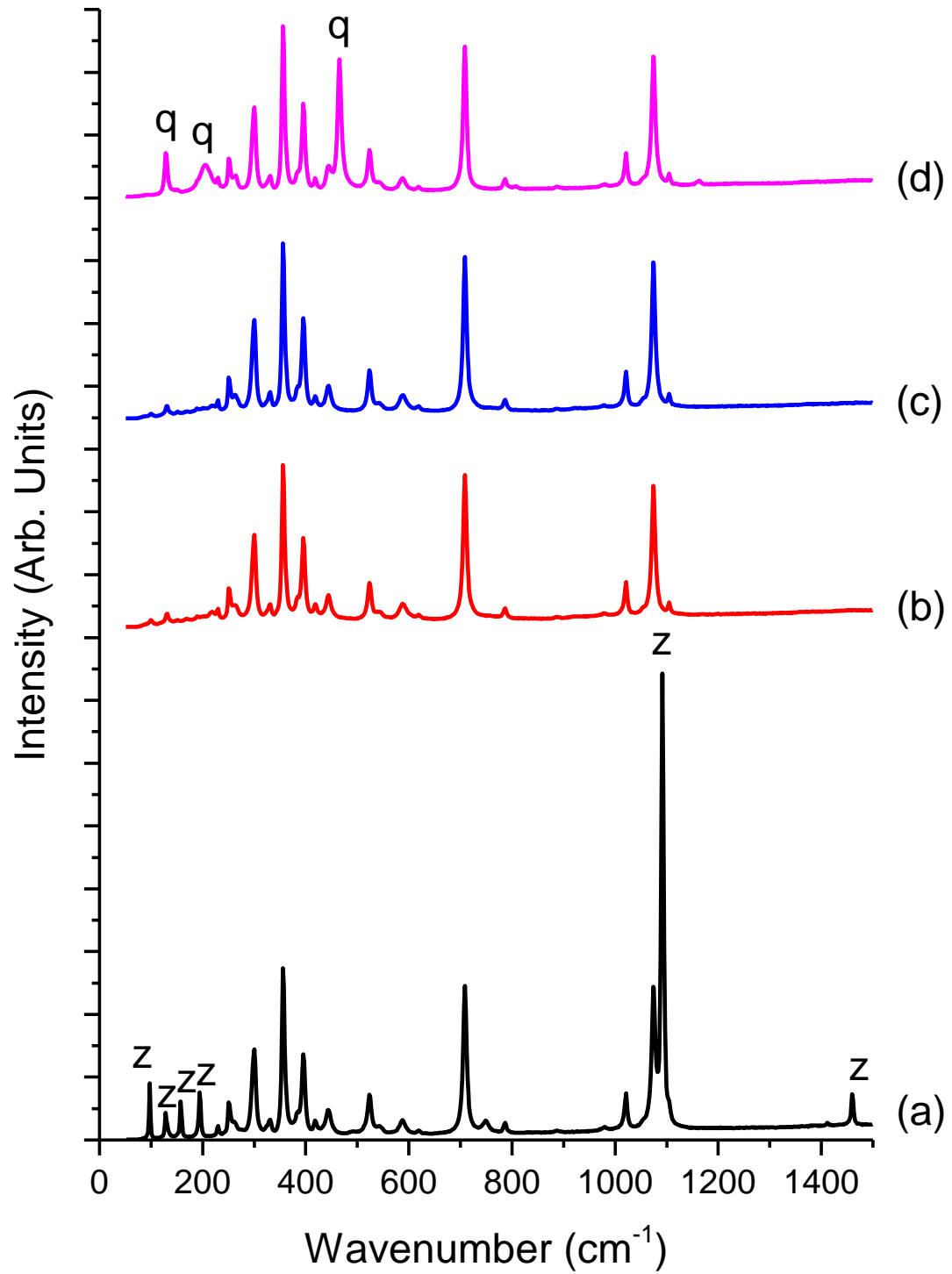


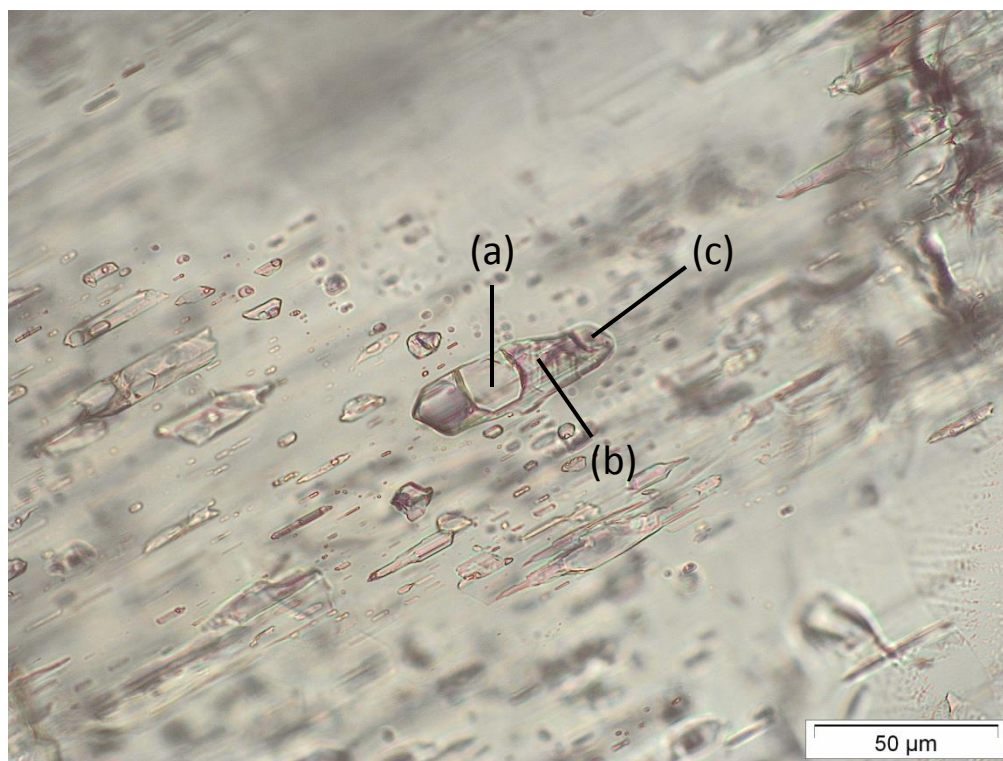
**B98090-27ppl**



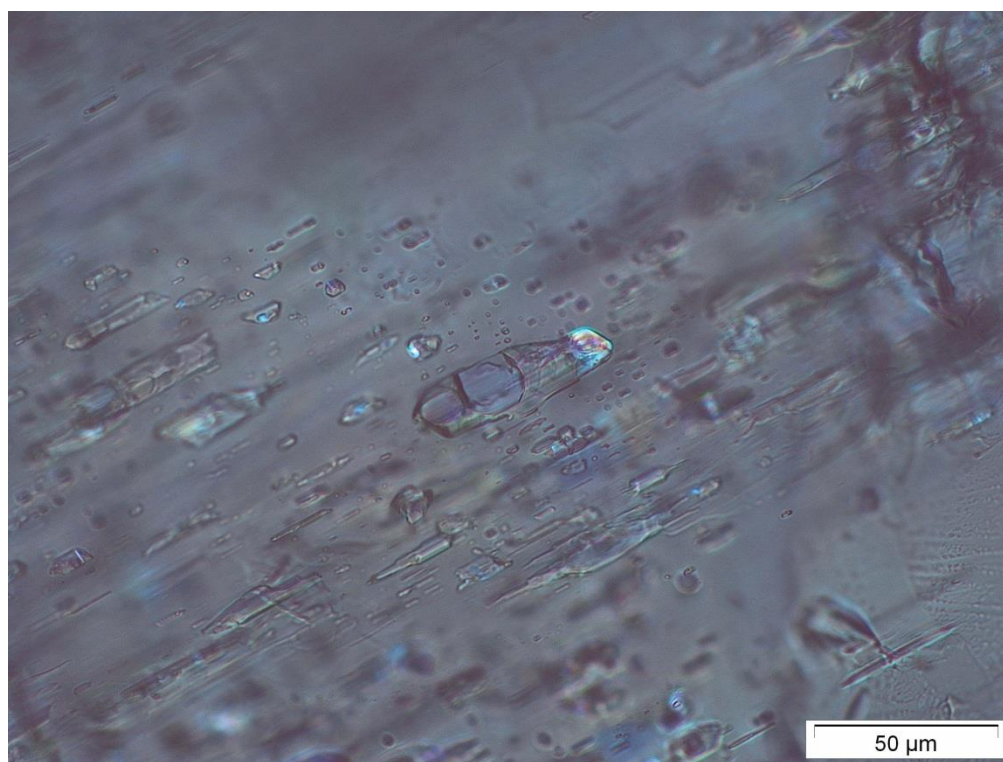
**B98090-27xpl**

Inclusion: B98090-27



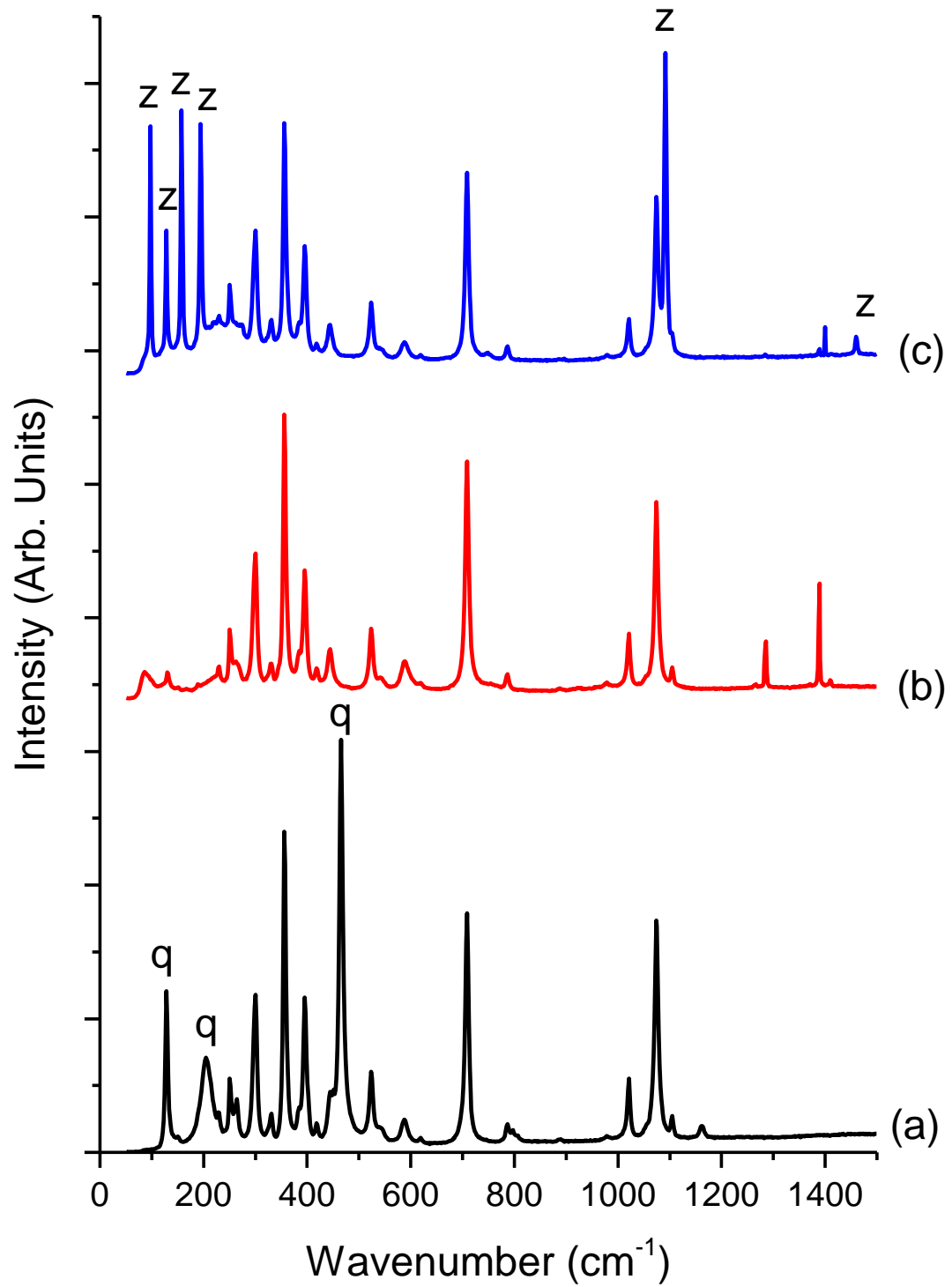


**B98090-28ppl**

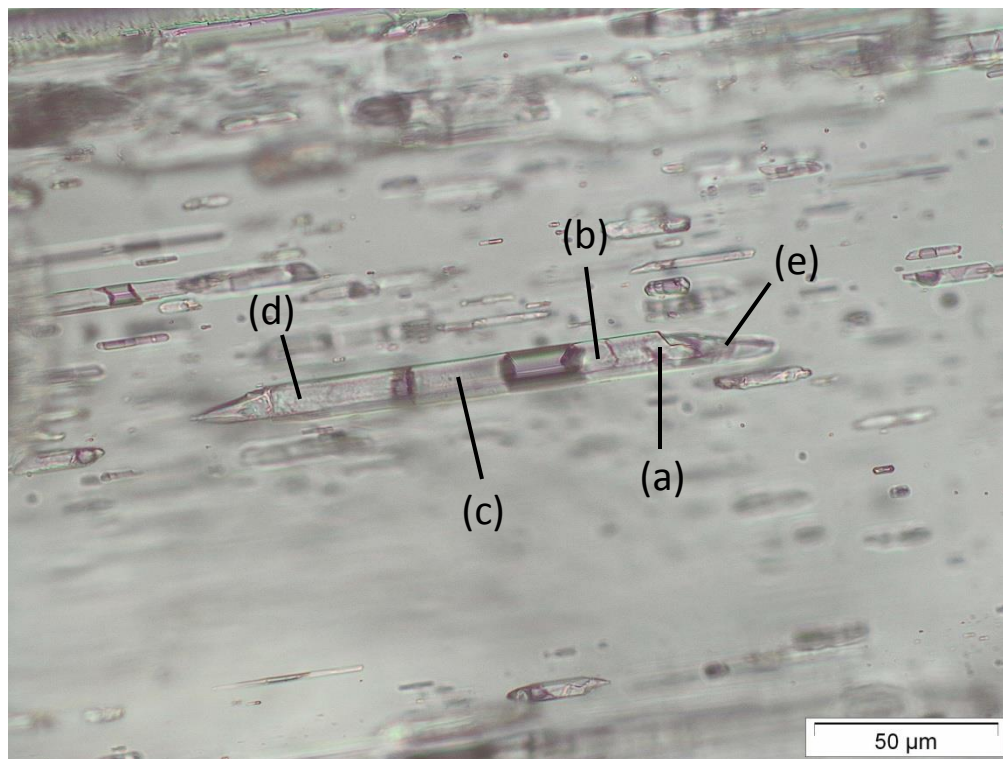


**B98090-28xpl**

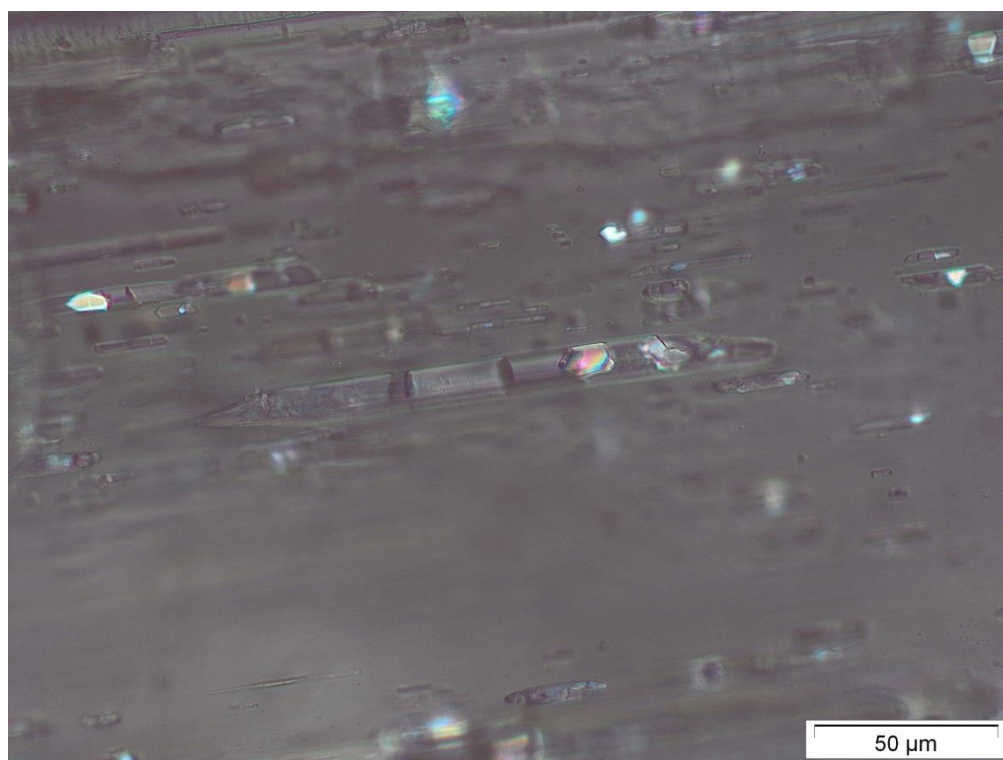
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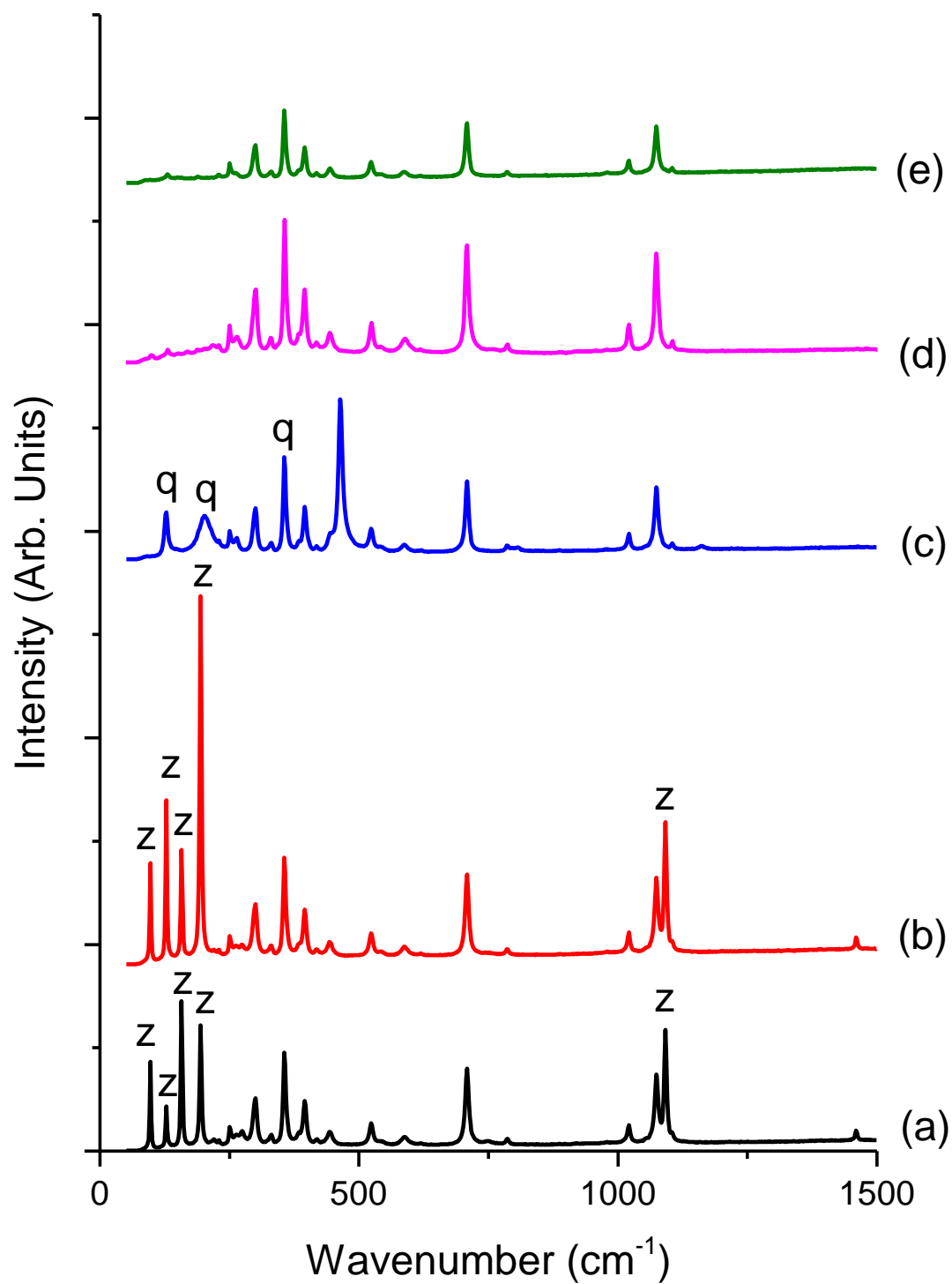
**B98090-29ppl**

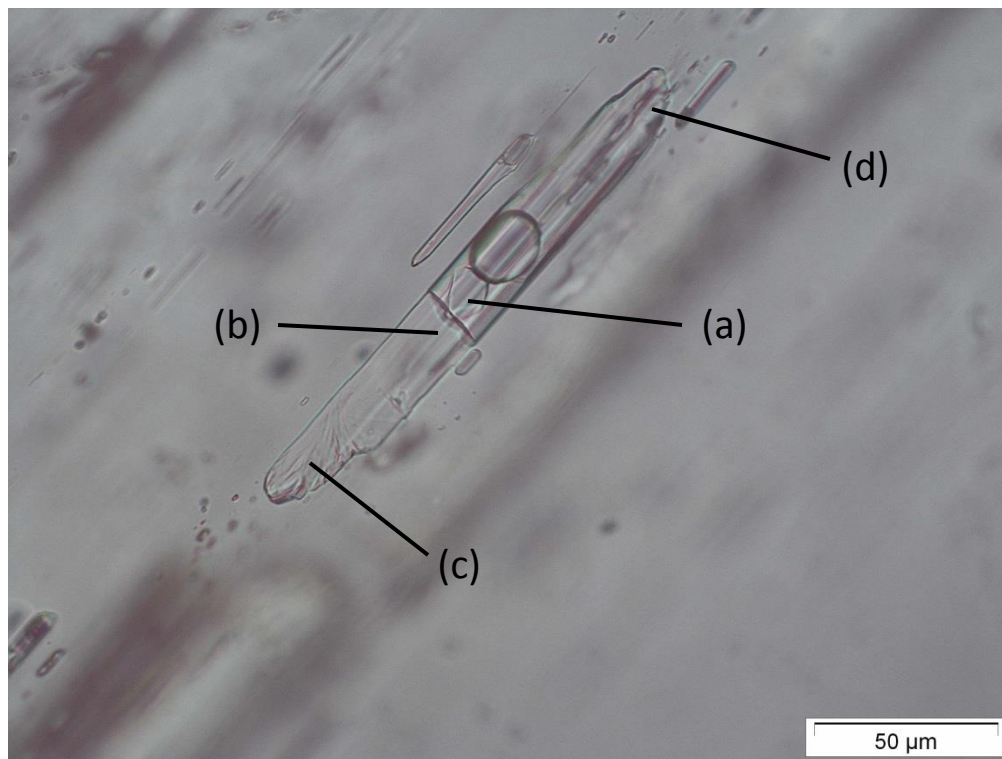


**B98090-29xpl**

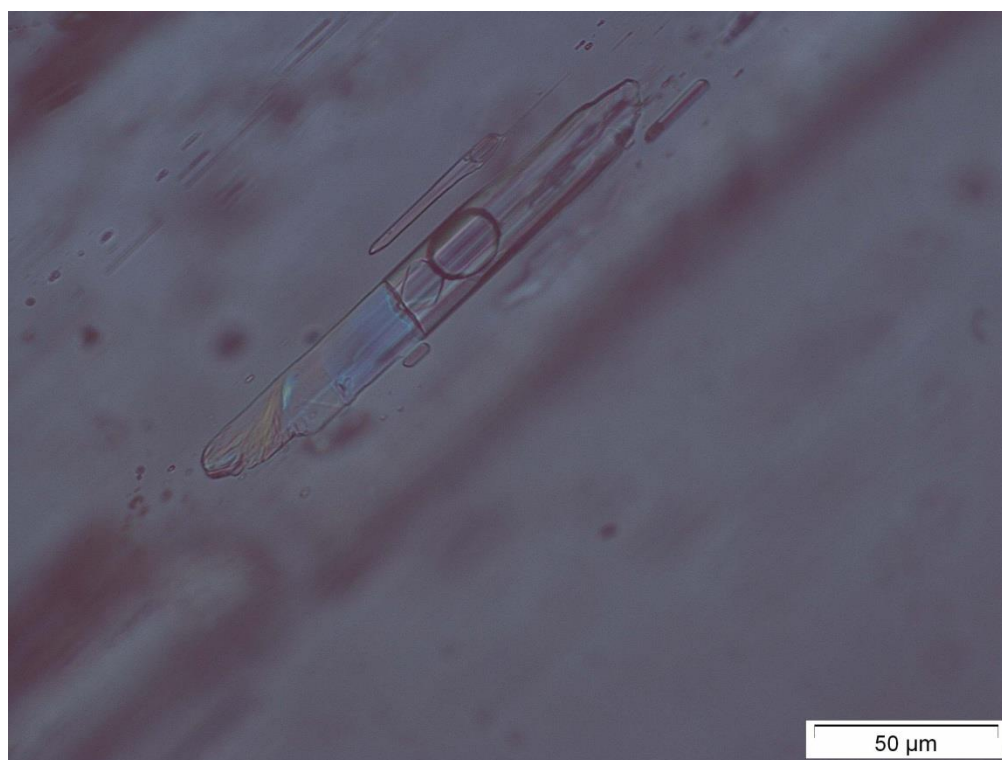


Inclusion: B98090-29





**B98090-30ppl**



**B98090-30xpl**

