



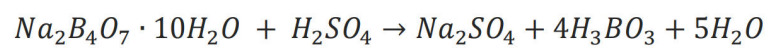
Application Note AN-PAN-1063

ラマン分光法によるホウ酸塩および硫酸塩溶液のインライン分析

$\text{O}[\text{1}](\text{H}_3\text{BO}_3)[2]$

202176522030116,989[3]
PTRam(100 mg/L)

(1)

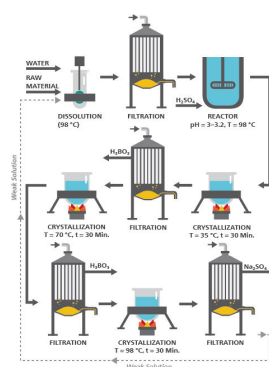


borax

boric acid

1.

(Na₂SO₄)(1)



1. [4]

[5](H₃BO₃)[6](Na₂SO₄)[7]

PTRam(2)()

()

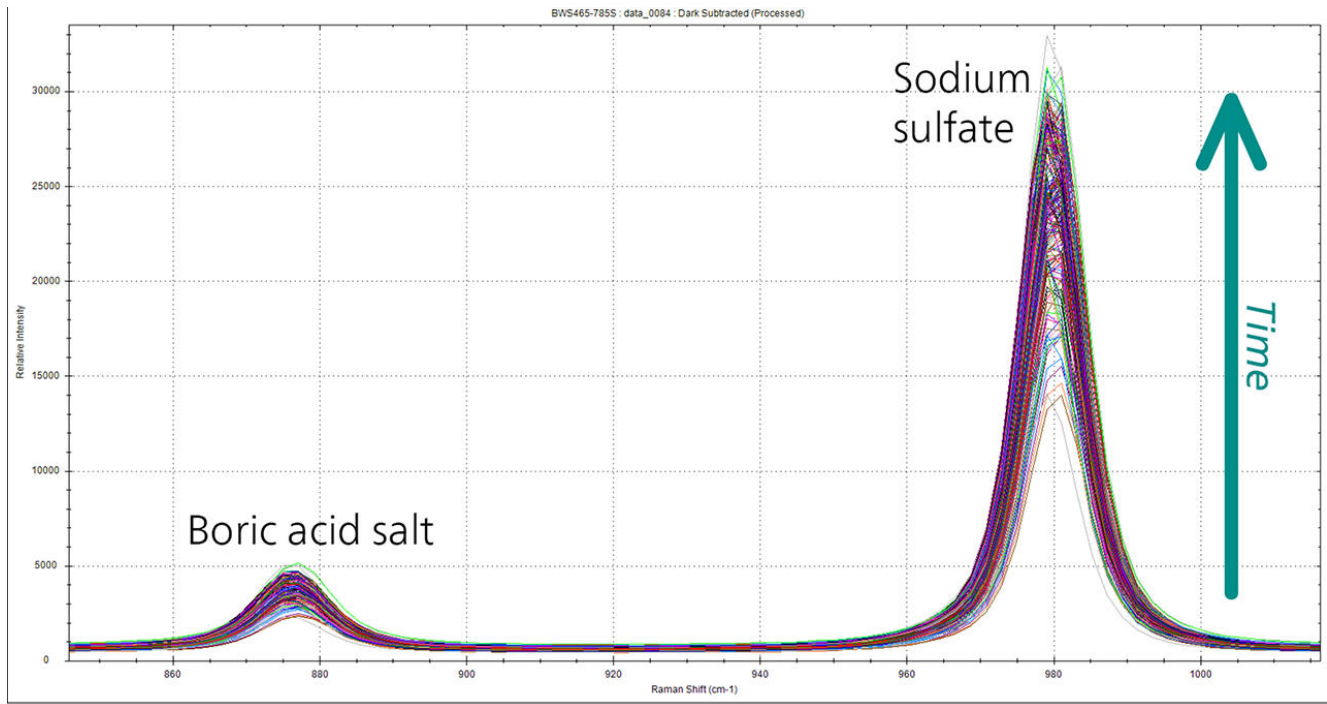


2. PTRam

785 nm(H₃BO₃)(Na₂SO₄)

880 cm¹993 cm¹(3)(H₃BO₃)(Na₂SO₄)(LOD)15

mg/L(BO₃315 mg/L)10 mg/L(SO₄27 mg/L)(1)



3.

1. (H₃BO₃)(Na₂SO₄)(LOD:mg/L)

† Standard Error of Prediction without bias correction; ‡ H₃BO₃ and Na₂SO₄, mg/L; * BO₃³⁻ and SO₄²⁻, mg/L. st: salt weight. io: ion weight.

		[mg/L]	SEP [†]	LOD _{st} [‡]	LOD _{io} [*]
H ₃ BO ₃	2	0–80	4.6	15.2	14.5
Na ₂ SO ₄	2	0–80	3.1	10.2	6.9
H ₃ BO ₃ in 1 g/L Na ₂ SO ₄	2	0–80	10.1	33.3	31.6
Na ₂ SO ₄ in 5 g/L H ₃ BO ₃	2	0–80	3.5	1.6	7.8

PTRam



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2. *Boron Mining: Sources And Major Producers | Borates Today.* <https://borates.today/boron-mining-sources-and-major-producers/> (accessed 2023-08-21).
3. *Boric Acid Market Size to Worth Around US\$ 1,169.89 Million by 2030.* <https://www.precedenceresearch.com/boric-acid-market> (accessed 2022-07-22).
4. Mergen, A.; Demirhan, M. H.; Bilen, M. Processing of Boric Acid from Borax by a Wet Chemical Method. *Adv. Powder Technol.* **2003**, *14* (3), 279–293. <https://doi.org/10.1163/15685520360685947>.
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6. Childs, M. P. Quantification of Boric Acid Concentration and Losses Due to Vaporization in the PASTA Facility., Texas A&M University, 2016.
7. Sodium Sulphate for Industrial Use — Determination of Sulphates Content — Calculation Method and Barium Sulphate Gravimetric Method, July 1975.

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PTRam Analyzer

PTRam Analyzer785 nm

PTRam19PTRamVision2060 Human Interface