

Butylone: Palladium Chloride with HCl and H₃PO₄

REAGENT 1: Palladium Chloride (H₂PdCl₄) with Concentrated Hydrochloric Acid (HCl) and Concentrated Phosphoric Acid (H₃PO₄)

H₂PdCl₄ in concentrated H₃PO₄ is made by combining 1 g of PdCl₂ with 0.9 mL of concentrated HCl, then make up to 20 mL with concentrated H₃PO₄.

Test Method

Direct test: Place a 10 µL drop of reagent on a coverslip. Invert coverslip and place it directly onto the sample.

References

1. Fulton, C. *Modern Microcrystal Tests for Drugs*, Wiley-Interscience: New York, 1969.

Limit of Detection

1 PPP (A larger amount of sample results in faster and larger crystal growth.)

Time Required for Crystal Formation

≈3 minutes

Crystal Morphology and Test Notes

Rosettes of tablets.

Photomicrograph of Typical Crystals

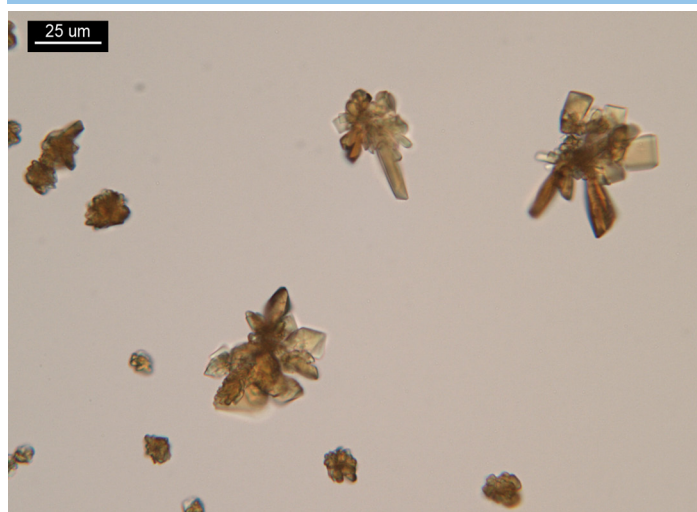


Figure 1. 1 PPP of butylone in 10 µL of H₂PdCl₄ with HCl and H₃PO₄ reagent. Crystals form rosettes of tablets.

Pharmaceuticals, Adulterants or Other Drug Interactions

Common adulterants that may inhibit or distort crystal formation include BZP, caffeine, ethylone, lidocaine HCl, MDPV, 4-MEC, mephedrone, methylone, alpha-PVP, and TFMPP. The detectability of butylone with selected adulterants is listed below:

- BZP:butylone — detectable at 1:5, 1:1, and 5:1
- Caffeine:butylone — detectable at 1:5, 1:1, and 5:1
- Ethylone:butylone — detectable at 1:5, 1:1, and 5:1
- Lidocaine HCl:butylone — detectable at 1:5, 1:1, and 5:1
- MDPV:butylone — detectable at 1:5, 1:1, and 5:1
- 4-MEC:butylone — detectable at 1:5, 1:1, and 5:1
- Mephedrone:butylone — detectable at 1:5, 1:1, and 5:1
- Methylone:butylone — detectable at 1:5, 1:1, and 5:1
- Alpha-PVP:butylone — detectable at 1:5, 1:1, and 5:1
- TFMPP:butylone — detectable at 1:5, 1:1, and 5:1

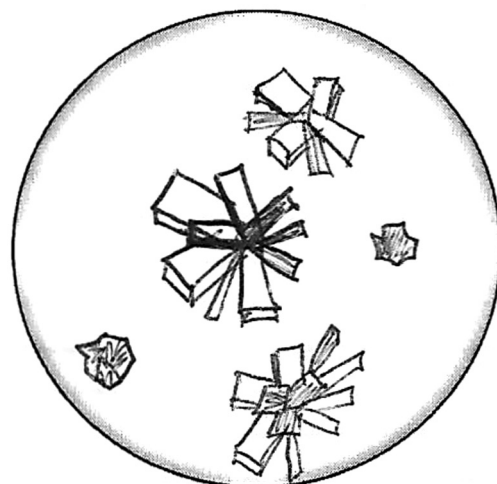
IR Spectrum

See Figure 6. [Download SPC](#) or [view JPG](#)

PLM Optical Properties

Approximate Size Range	10–115 µm
Color/Pleochroism	Yellow-brown. Pleochroic: dark brown to light yellow
Refractive Indices (RI)	n ₁ ≈ 1.500 n ₂ > 1.700

Morphology Illustration



not to scale

How Crystals Were Dried for RI Measurement	Excess liquid was wicked away with lab tissue then washed with absolute ethanol and dried at room temperature.
Estimated Birefringence	High
Extinction	Oblique (individual tablets) and parallel
Sign of Elongation	Not applicable
Crystal Optics and Optic Sign (Interference Figure)	Indeterminable

Butylone: Palladium Chloride with HCl and H₃PO₄ (continued)

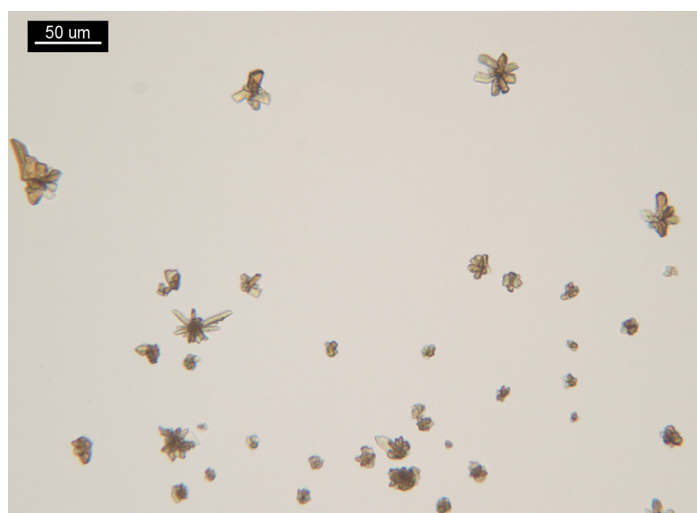


Figure 2. 1 PPP of butylone in 10 μL of H₂PdCl₄ with HCl and H₃PO₄ reagent. Crystals form rosettes of tablets.

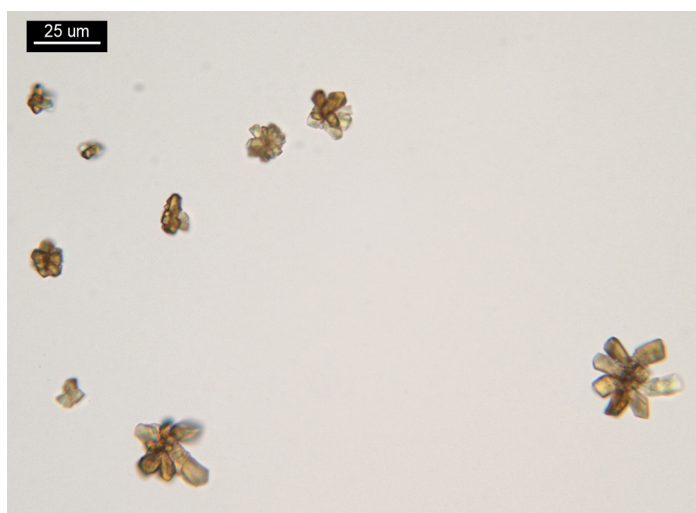


Figure 3. 1 PPP of butylone in 10 μL of H₂PdCl₄ with HCl and H₃PO₄ reagent. Crystals form rosettes of tablets.

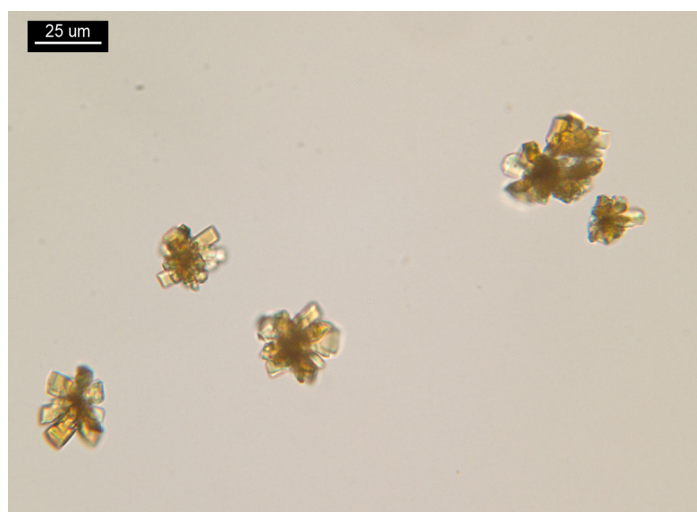


Figure 4. 4-MEC:butylone mixture (1:1) and 10 μL of H₂PdCl₄ with HCl and H₃PO₄ reagent. Crystals form rosettes of tablets.

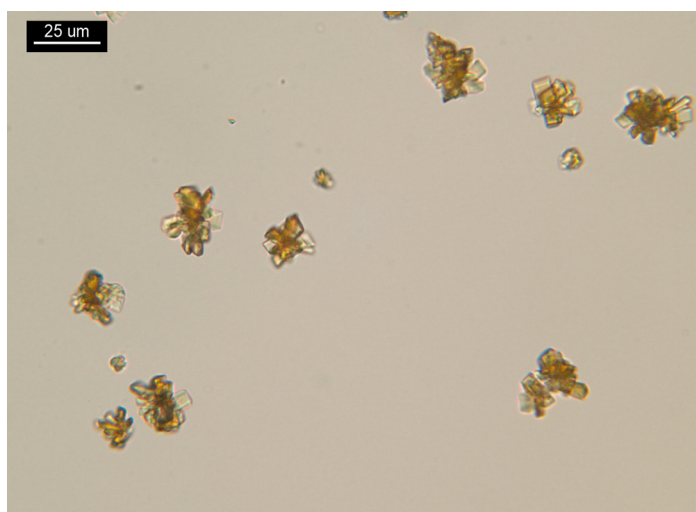


Figure 5. Methylone:butylone mixture (5:1) and 10 μL of H₂PdCl₄ with HCl and H₃PO₄ reagent. Crystals form rosettes of tablets.

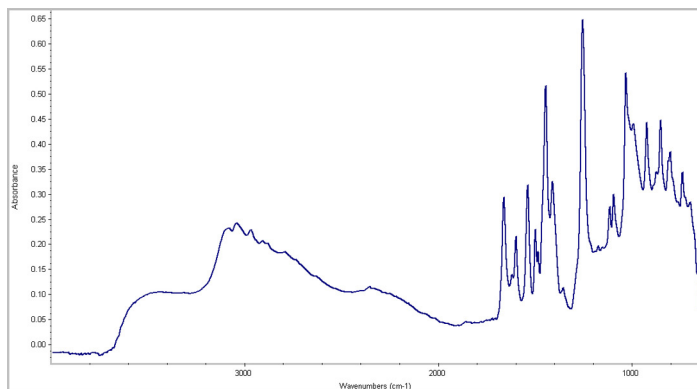


Figure 6. Infrared spectrum of butylone H₂PdCl₄ with HCl and H₃PO₄ precipitate. [Download SPC](#) or [view JPG](#)