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### N- $\alpha$ -PYRIDYL-N'-BENZOYL THIOUREA (PBT) AS A NEW REAGENT FOR THE DETERMINATION OF PLATINUM (IV) GRAVIMETRICALLY

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DURING the last few decades, a wide variety of gravimetric procedures for the determination of platinum have been reported, however, the reagents which furnish precipitate for direct weighing are few in number<sup>1</sup>. N- $\alpha$ -pyridyl-N'-benzoyl thiourea (PBT) has been recommended successfully<sup>2</sup> for determination of Os(VI) and Rh(III) gravimetrically. In the present paper, the analytical applicability of PBT in the gravimetric determination of platinum(IV) is investigated. A 1% reagent, dissolved in 50% acetic acid, is used to precipitate the metal. The reagent forms two distinct types of complexes of platinum under different conditions of acidity. Platinum(IV) forms a brown complex with the reagent at 60°–70°C in 0.5–2 N hydrochloric acid which corresponds to Pt (C<sub>13</sub>H<sub>9</sub>N<sub>3</sub>OS) (A) when dried at 110–120°C. The brown chelate is soluble in ethyl alcohol, chloroform, carbon tetrachloride and other common organic solvents. Complete precipitation of the complex occurs when the supernatant liquid contains about 0.01% (w/v) reagent in excess. The metal is also precipitated from hot (60–70°C) acetate solution at pH ranging from 4.0 to 8.2 and the yellow, chelate, dried at 110–120°C corresponds to Pt (C<sub>13</sub>H<sub>10</sub>N<sub>3</sub>OS)<sub>2</sub> (B). The precipitation of the metal is complete when the supernatant solution contains 0.1% (w/v) of the reagent in excess. In both cases, the precipitate is washed with 1% hot acetic acid solution. The yellow complex is soluble in ethyl alcohol and chloroform, but less soluble in benzene, carbon tetrachloride, nitro-

robenzene etc. Both complexes (A) and (B), are suitable for direct gravimetric determination of the metal, but the complex (B) is preferred to (A), since the former has a higher molecular weight and could be filtered easily.

The metal complex (A) is used for some important separations such as separation of platinum from rhodium and iridium. The metal is separated from Co, Zn, Al, Cd, Mn, Ga, In, W, U, Mo, Th, V and Ti (500 mg added in each case) in the presence of tartrate and from Cu, Hg, Au, Ni (700 mg added in each case) in the presence of EDTA whereas Ti (500 mg) is masked with fluoride ion. Platinum is separated from rhodium(III) and iridium(III) (200 mg in each case) by prior precipitation of the former with PBT in acid medium. Os(VI) and Ru(III) are reduced by SO<sub>2</sub> and hydroxylamine hydrochloride respectively and then platinum is determined using the above procedure (B). Palladium(II) and cyanide ions, however, interfere with this determination.

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### EFFECT OF HERBICIDE DPX-F6025 (CLASSIC), 2-(((4-CHLORO-6-METHYL-PYRIMIDINE-2-YL) AMINO CARBONYL) AMINO SULFONYL) BENZOIC ACID, ETHYL ESTER, ON CULTURED CELLS OF CORN AND SEVERAL GENOTYPES OF SOYBEAN

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A NEW herbicide DPX-F6025 (Classic), 2-(((4-chloro-6-methyl-pyrimidine-2-yl) amino carbonyl) amino sulfonyl)) benzoic acid, ethyl ester, has