hour afterward. The amide was recrystallized from benzene-petroleum ether; m. p. 106-107°; yield 75%.

Anal. Calcd. for $C_{11}H_{15}ON$: C, 74.54; H, 8.53. Found: C, 74.72; H, 8.37.

2,2',4,4',6,6'-Hexaethylhydrobenzoin.—A 2-g. sample of 2,2',4,4',6,6'-hexaethylbenzil[2] was dissolved in 19 ml. of ethanol and hydrogenated at 135° and 2300 pounds pressure in the presence of 2 g. of copper chromite catalyst. The reduction was complete in five and one-half hours. After removal of the catalyst and solvent the hydrobenzoin was recrystallized from aqueous acetone. It separated in colorless crystals; m. p. 225-226°.

Anal. Calcd. for $C_{26}H_{38}O_2$: C, 81.62; H, 10.01. Found: C, 81.55; H, 10.02.

2,2',6,6'-Tetramethylhydroanisoin.—One gram of 2,2',6,6'-tetramethylanisil[3] in 19 ml. of ethanol was hydrogenated at 130° and a pressure of 1800 pounds per sq. in. in the presence of 2 g. of copper chromite catalyst. The reduction was complete in five hours. After removal of the catalyst by filtration the filtrate was concentrated to 5 ml. The addition of 0.5 ml. of water caused the hydroanisoin to precipitate. It was recrystallized from a mixture of benzene and petroleum ether; m. p. 199-200°; yield 0.65 g.

Anal. Calcd. for $C_{20}H_{26}O_4$: C, 72.70; H, 7.93. Found: C, 72.84; H, 8.03.

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[2] Fuson and Corse, This Journal, **60**, 2063 (1938).

[3] Fuson, Corse and Welldon, *ibid.*, **63**, 2645 (1941).

DEPARTMENT OF CHEMISTRY
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RECEIVED AUGUST 13, 1945

1-(2,4,6-Triisopropylphenyl)-3,3-diphenyl-1-propen-1-ol

Condensation of 2',4',6'-triisopropylchalcone with phenylmagnesium bromide was found to yield 1-(2,4,6-triisopropylphenyl)-3,3-diphenyl-1-propanone, the enol form of which—1-(2,4,6-triisopropylphenyl)-3,3-diphenyl-1-propen-1-ol—was stable in solution.

2',4',6'-Triisopropylchalcone.—Fifty grams of benzaldehyde was added, with stirring, to an ice cold mixture of 100 g. of 2,4,6-triisopropylacetophenone, 21 g. of sodium hydroxide and 500 ml. of 95% ethanol. The reaction mixture was stirred during the period of addition and for an additional twenty-seven hours. During the first three hours of this time the temperature of the mixture was kept at 0° and afterward at room temperature. The chalcone crystallized from alcohol in pale yellow needles; m. p. 100-101°; yield 91%.

Anal. Calcd. for $C_{24}H_{30}O$: C, 86.17; H, 9.04. Found: C, 86.69; H, 9.32.

1-(2,4,6-Triisopropylphenyl)-3,3-diphenyl-1-propanone.—To a solution of phenylmagnesium bromide made from 7.3 g. of magnesium, 47 g. of bromobenzene and 75 ml. of ether was added a solution of 33.4 g. of 2',4',6'-triisopropylchalcone in 150 ml. of ether. The mixture was heated for one hour under reflux and decomposed with cold ammonium chloride solution. The ether solution was divided into two equal parts. Evaporation of the solvent from one of them left the 1-(2,4,6-triisopropylphenyl)-3,3-diphenyl-1-propanone as a residue. It crystallized from ethanol in white needles; m. p. 117-118°; the yield was practically quantitative.

Anal. Calcd. for $C_{30}H_{36}O$: C, 87.33; H, 8.80. Found: C, 87.77; H, 8.68.

The ketone gave negative tests with ferric chloride solution, bromine in carbon tetrachloride and potassium permanganate in acetone.

1-(2,4,6-Triisopropylphenyl)-3,3-diphenyl-1-propen-1-ol Peroxide.—Half of the ether solution from the foregoing experiment was diluted with about five times its volume of low-boiling petroleum ether and washed twice with ice water. A rapid stream of oxygen was passed through the moist solution. The peroxide separated in white needles which were recrystallized from a mixture of ether and low-boiling petroleum ether. The yield was 11 g. The compound melted, with decomposition, at 156°. In contact with a flame it decomposed with a flash and then burned quietly.

Anal. Calcd. for $C_{30}H_{36}O_3$: C, 81.04; H, 8.17; Found: C, 80.73; H, 8.12.

A steady stream of oxygen was bubbled for twelve hours through a solution of 6 g. of the enol peroxide in 200 ml. of acetone. One gram of an acidic product was isolated and purified by sublimation; m. p. 144°. A mixed melting point determination showed the compound to be diphenylacetic acid.[1]

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[1] Dunlap, This Journal, **19**, 645 (1897).

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RECEIVED SEPTEMBER 20, 1945

COMMUNICATIONS TO THE EDITOR

OBSERVATIONS ON THE ANGULAR SCATTERING OF LIGHT BY SULFUR SOLS

Sir:

Bidhubhusan Ray[1] observed that the light scattered by a sulfur sol produced by mixing dilute solutions of sodium thiosulfate and sulfuric acid exhibited different colors depending on the angle which the scattered light ray made with the incident beam. Ray correctly explained these "axial colors" as due to the asymmetrical distribution of the light scattered by the sulfur particles and to the strong dependence of the shape of the scattering patterns on the wave length of the incident light.

LaMer and Barnes in some unpublished investigations, have shown that purer, more sharply defined colors and hence more uniform particle sizes can be obtained if the reacting solutions are very dilute (about 0.001 *M*). The growth of the liquid sulfur droplets is stopped by the addition of iodine and the sol stabilized.

We have found that although many bands of colors are exhibited, these sols are characterized experimentally most easily by the bands of reddish hue. The angular position and number of these red bands called "orders," are related theoretically to the size of the sulfur particles.

The position of the orders exhibited by such a sol at various times, *i. e.*, stages of growth, are

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[1] B. Ray, *Indian Assoc. Cultiv. Sci.*, **7**, 1 (1921).