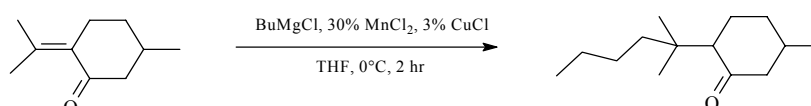


Name:

Part 1 Translation

2-(1,1-DIMETHYLPENTYL)-5-METHYLCYCLOHEXANONE FROM PULEGONE



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1. Procedure

A 500-mL, three-necked, round-bottomed flask is equipped with a mechanical stirrer, 100-mL, pressure-equalizing dropping funnel, and a Claisen head fitted with a low-temperature thermometer and a nitrogen inlet (Note 1). The flask is charged with 80 mL of anhydrous tetrahydrofuran (Note 2), 1.9 g (15 mmol) of anhydrous manganese chloride (Note 3), 0.15 g (1.5 mmol) of cuprous chloride, 1.28 g (30 mmol) of lithium chloride, and 7.61 g (50 mmol) of R-(+)-pulegone. The mixture is stirred at room temperature until dissolution of the salts is complete (1 to 2 hr), then a solution of butylmagnesium chloride (58 mmol) in tetrahydrofuran is added dropwise at 0°C over a 25-30 min period. Stirring is continued for 1.5 hr at 0°C. The reaction mixture is hydrolyzed by dropwise addition of 2 M hydrochloric acid (HCl, 100 mL). After addition of 80 mL of petroleum ether (35-60°C) and decantation, the aqueous layer is extracted three times with 100-mL portions of petroleum ether (35-65°C). The combined organic layers are successively washed with 50 mL of 1 M HCl, 50 mL of a diluted ammonium chloride/ammonium hydroxide solution and 50 mL of a saturated sodium bicarbonate solution, then dried over magnesium sulfate. After filtration, the solvents are removed with a rotary evaporator (20 mm, room temperature). The product is obtained in crude form in almost quantitative yield as a 61.5 : 38.5 mixture of diastereoisomers, purity > 96%. Distillation under reduced pressure affords 9.85 g of pure 2-(1,1-dimethylpentyl)-5-methylcyclohexanone (94%), bp 101-105°C (3 mm).

2. Notes

1. The apparatus is flame-dried under a stream of dry nitrogen or argon. Later a slight positive nitrogen pressure is maintained with an oil bubbler throughout the reaction.
2. Tetrahydrofuran is freshly distilled from sodium benzophenone ketyl under a nitrogen atmosphere.
3. Manganese chloride must be finely pulverized, then dried by heating at 180°-200°C (0.1 mm to 0.01 mm) for 6 hr (for example, in a vacuum oven) prior to use. The anhydrous salt is very hygroscopic and must be protected against moisture (a well-closed bottle is convenient). It can, however, be handled very quickly without any special precaution.

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Part 2

Fill in the correct time by using the verb in bracket

He _____ (fly) to Hong Kong last year. She _____ (keep) in touch with the family since years.

My father _____ (sell) his car a month ago. In the meantime he _____ (take) the bus to go to work.

These flowers _____ (smell) nice. He _____ (know) that he had to pay for it. Peter _____ (teach) for years. Melanie _____ (dream) of being a star last night. The present is _____ (hide) behind the kitchen door. Yesterday, he _____ (learn) that he _____ (spend) too much money. She _____ (read) the Bush information two weeks ago. In the end they _____ (be) sure that they _____ (choose) the right person for this job.

Adjective or adverb? Correct the wrong adjectives or adverbs. The first one is done for you!

First trip to New York

I thought the flight across the Atlantic would be ~~excited~~ ^{exciting}. I was exciting for the first hour, but after that I was boring. There was nothing interested to look at because I didn't have a window seat. That was very disappointing. So I watched the film. It was a bit confusing but it was quite amused. Then I tried to speak to the man next to me but he wasn't interested. In fact he seemed surprising and annoyed when I tried to start a conversation. Then I ate the food but it was disgusted.. After that, I felt tiring so I slept for a couple of hours. When I woke up I was surprising to find we were nearly in New York. I'll never forget the view of Manhattan without the Twin Towers from the plane – it was amazed!