A low cost, high yield and safe method for industrial syntheses of acetone (Ariel)

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The cumene process (cumene-phenol process, or Hock process) is the major industrial process for synthesizing phenol and acetone from benzene and propylene. Cumene is currently produced by the reaction of cumene with oxygen at high temperature (80-120 C) for several hours under typically 5 atmospheres of pure oxygen. The reaction results in several byproducts that must be removed from the product with low conversion. Since heat and 100% oxygen atmosphere at high pressure are required, the reaction is known to be very hazardous. We have developed a new synthetic approach that circumvents a new photochemical catalytic synthetic process for the oxygenation of alkanes and specifically, cumene to give the corresponding hydroperoxides or carbonyl compounds. **Thus, our cumene process is a fast (few hours), safe (atmospheric pressure without the need to heat the reaction) and leads to high conversion with low formation of unwanted byproducts.**

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