केन्द्रीय नमक व समुद्री रसायन अनुसंधान संस्थान
CENTRAL SALT & MARINE CHEMICALS RESEARCH INSTITUTE
वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद
COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH

CSIR
The Innovation Engine of India

Technology for Scale-up Study & Demonstration

Process for Preparation of Alpha-Pinene Oxide from Alpha-Pinene

About Alpha-Pinene Oxide

- Alpha-Pinene is one of the today's underutilized fraction available from pulp, paper and bio refinery processes. Derivatives of pinene are comparatively more attractive platform chemicals
- Biomass based monomers are renewable alternatives to traditional oil-based monomers
- Considering the importance of bio-based products, epoxidation of alpha-pinene is crucial to develop for its diverse applications

CSMCRI Product Application

The product alpha-pinene oxide is a key intermediate and an important precursor for fragrance and flavour industries such as a-campholenic aldehyde (Sandalwood fragrance such as santanol, givaudan) and carveol (constituent of spearmint oil)

CSMCRI Process

- The technology relies on a sustainable process without the use of chlorine or peracid based oxidant
- Good yield of alpha-pinene oxide is achievable with inexpensive reagents under mild reaction conditions
- Use of an inexpensive catalytic system
- Demonstration is ready at 1 Kg level

Molecular Weight: 152.23 g/mol
Boiling point – 102-103 °C
Density - 0.964 g/mL at 25 °C