



Center  
for Innovations, Investments  
and Technology

## A NEW PROCESS FOR PRODUCTION OF DIACETONE ALCOHOL BY ULTRASOUND METHOD



One and First in the World Technology  
with Use of Ultrasound Field  
for diacetone alcohol preparation  
in aldol reaction of acetone condensation

Method Protected by Polish Patent

## ADVANTAGES

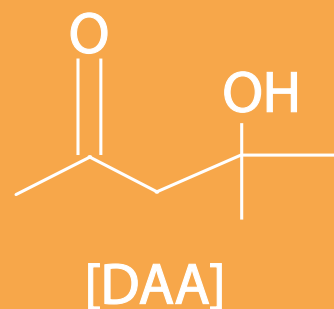
- high efficient, economic and environmental friendly process !!! – no wastes
- possibility of re-use of unprocessed acetone and catalyst
- easy separation of the product from the reaction surroundings
- possibility of wide scale of catalysts types applications

- **limited reaction time !!!**

(up to 5-30 minutes compared to few hours in conventional methods)

**short production time = more product = lower final costs**

- **100 % selectivity of diacetone alcohol obtaining !!!**
- **maximum acetone conversion to DAA under 20**
- **high quality and purity of the product (>99%) !!!**
- **easy accommodation of the production scale**  
(from small scale up to tens thousands tons per year)



CAS: 123-42-2

Boiling Point=166°C; Melting Point=-47°C

formula:  $(\text{CH}_3)_2\text{C}(\text{OH})\text{CH}_2\text{COCH}_3$

## A NEW PROCESS FOR PRODUCTION OF DIACETONE ALCOHOL BY ULTRASOUND METHOD



**Technology awarded by Silver Medal**  
for outstanding achievement – invention / novelty



### PROCESS USES

- **special reactor producing ultrasound field – acoustic waves with frequency over 16 kHz, crossing the higher limit of human audibility, and lower limit than 100 MHz (hypersounds) and**
- **distillation centre**
- **catalysts separation and regeneration centre**
- **re-use system of unprocessed catalyst**

### APPLICATION OF DAA

- high-boiling dissolvent of brush drifted paints, lacquers, hot sprayed lacquers, and dissolvent in production of epoxide resins coats
- dissolvent of nitrocellulose, cellulose acetate using in lacquers and photo materials
- high-boiling dissolvent in production of textiles dyes and in typographic industry (printing paints, inks, toners)
- component in cleansers for rollers shifting paper (in typographic machines, printers, scanners, faxes, etc.)
- dissolvent in hydrocarbon separation processes
- one of the main raw materials in brake fluid production
- substrate in making of mesityl oxide, MIBK, MIBC, methoxyhexanone
- substrate in fine chemicals synthesis using in pharmaceutical, cosmetic and agriculture industry

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