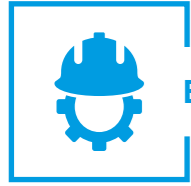




TECHNOLOGY LICENSING



ENGINEERING SERVICES



PLANT CONSTRUCTION

IDEAS INSIDE ^{EPC}



CHDM Hydrogenation Technology

High-quality comonomers for production of
PETG, PCT, PCTG, PCTA

CONTACT

EPC Engineering & Technologies GmbH

Siemensstrasse 24-26
63755 Alzenau
Germany

Phone: +49 6023 5017 - 2110
Fax: +49 6023 5017 - 2117
Email: alzenau@epc.com
Web: www.epc.com



Our Technology for Turnkey CHDM Hydrogenation Plants

EPC Group is a specialist in process engineering and industrial plant construction with a successful track record of having completed over 1,000 projects in more than 40 countries.

EPC is offering its CHDM Hydrogenation Technology for the production of high-quality CHDM. This highly efficient and flexible continuous hydrogenation process ensures the economically feasible production of CHDM.



EPC Group is certified per DIN EN ISO 9001

IDEAS INSIDE ^{EPC}



CHDM- Hydrogenation Plants

Combination of Flexible Plant Design and Formulation Know-how

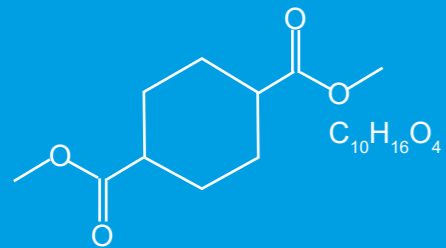
CHDM is used as a co-monomer for the production of various polymers e.g. PETG, PCT, PCTG and PCTA.

As a comonomer in polyester production it enhances:

- The reactivity in polyester compounds
- The hydrolytic stability, plasticity
- Gloss, transparency and the processability of polyester

Added as a comonomer for the production of glycol-modified PET (PETG), the polymer offers:

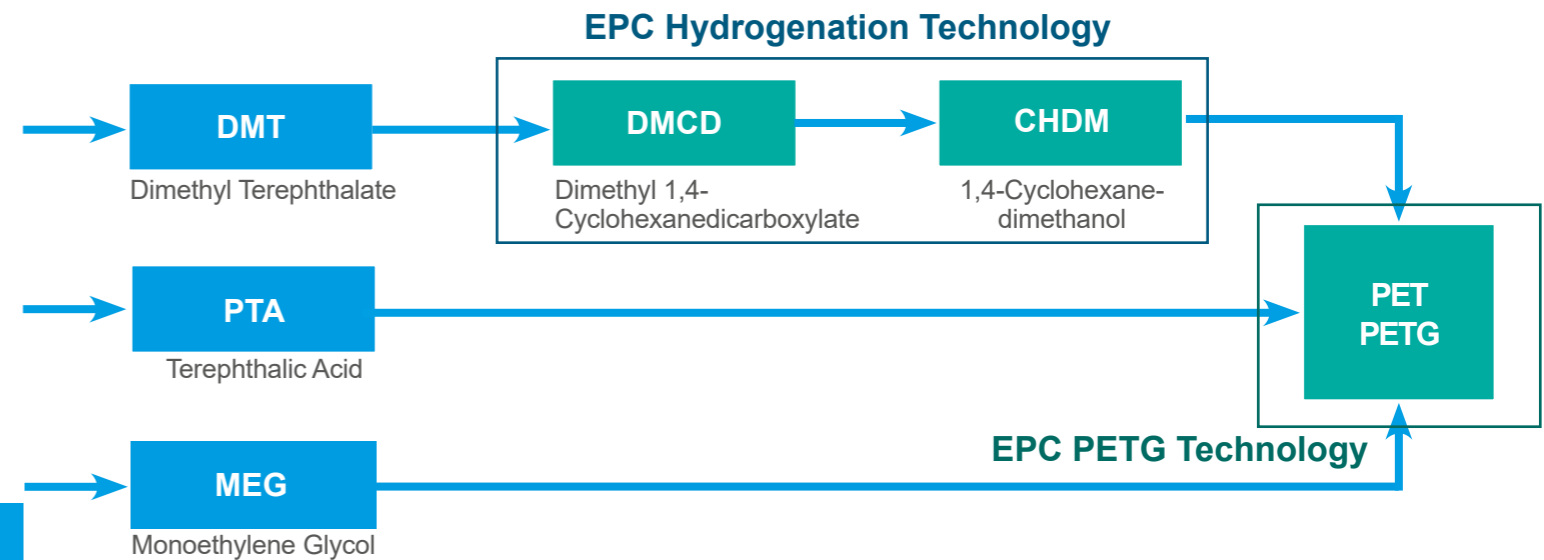
- Excellent melt strength
- Easy processing combined with optimal mechanical properties
- Inability to develop crystalline haze → high transparency
- No yellowing in molding due to high thermal stability
- Superior chemical resistance



The intermediate **DMCD** (Dimethyl 1,4-Cyclohexanedicarboxylate) can also be sold on the market.

Additionally it enhances thermal stability, corrosion resistance of the resin in chemical intermediates, polyester resins for coatings and unsaturated polyester applications.

CHDM in the Production of PETG:



Services offered by EPC for CHDM Hydrogenation Technology:

- ✓ Technology Licensing
- ✓ Extended Basic Engineering
- ✓ Key Equipment Delivery
- ✓ Supervision of Installation
- ✓ Supervision of Commissioning & Start-Up
- ✓ Recipe Development & Product Optimization

EPC's engineering work provides the most efficient concept that integrates:

- ✓ High production flexibility
- ✓ Consistent product quality at the highest level
- ✓ Capacity range from 50 % to 100 % of rated capacity ensures high flexibility for the market
- ✓ Optimized catalyst system
- ✓ Compact plant design including high automation grade
- ✓ Efficient energy and material consumption
- ✓ Independent cooling systems for accurate control of reaction temperature
- ✓ Environmentally friendly design, compliant with current and future EU standards

Advantages of EPC's CHDM Hydrogenation Technology:

- ✓ High quality CHDM guaranteed
- ✓ Optimal cis/trans ratio isomers
- ✓ Recycling of process methanol available
- ✓ Low cooling water consumption
- ✓ Reduced process conditions compared to existing technologies
- ✓ Optimized ratio of CHDM / Catalyst
- ✓ High efficiency in energy consumption
- ✓ Easily available base catalyst
- ✓ Sophisticated process control
- ✓ No restrictive license terms



- Polymers & Fibers
- Chemistry & Specialty Chemistry
- Renewable Energies
- Biotechnologies
- Engineering Services & Infrastructure
- Pharmaceuticals & Fine Chemistry



- Cryogenic Systems
- Systems for Compression & Liquefaction of Gases
- Small Scale LNG Systems
- Air Separation Systems
- CO₂ Technologies
- Special Applications for Technical Gases



- Construction Engineering
- Infrastructure
- Building & Civil Engineering
- Project Management
- Technical Building Equipment



CONTACT

Dipl.-Ing. / MBA

Michael Streng

Member of the Managing Board

Phone: +49 6023 5017 - 21 20

Email: michael.streng@epc.com



Karol Kerrane

Business Development Director

Phone: +49 3628 66048 - 29 00

Email: karol.kerrane@epc.com

