Maleic anhydride (MAN, C₄H₄O₃) is a very reactive molecule used in a wide range of applications from commodity plastics to fine and performance chemicals. This TECH report provides an overview of the commercial and developing technologies for producing MAN and addresses the following questions:

- What are the major production technologies for MAN and how do they differ?
- Is the technology available and who are the key technology owners and licensors? What are the key differences between their offering?
- What are the key developments in MAN technologies?
- What are the key market drivers?
- What is the business and regulatory environment like for MAN today?
- What are the key factors that impact overall economics for producing MAN across different technologies and geographic regions?

**Commercial Technologies**

The TECH report details the differences between the technologies of the main MAN licensors: Huntsman, CONSER, Scientific Design, Technobell, Lummus, and Mitsubishi.

**Developing Technologies**

Most R&D efforts are directed toward improving the MAN oxidation reactor and catalyst as well as making bio-based routes to MAN cost competitive. The two feedstocks currently being investigated at lab scale are bioethanol and furfural.

**Process Economics**

Over 70 percent of the global capacity and all the announced capacity additions are/will be based on the n-butane route. Thus, the cost of production via this route for plants located in the United States, Western Europe, the Middle East, and China has been estimated for the first quarter of 2020. Indeed, those regions/countries account for about 82 percent of the global MAN capacity.

**Commercial Overview**

The global demand for MAN in 2020 is estimated at 2.5 million tons and is forecast to grow by 4.4 percent per annum on average to about 3 million tons in 2025. Asia, North America, and Western Europe together represent about 90 percent of the total demand.

- The main end use for MAN is unsaturated polyester resins (UPR), which are rigid thermoset resins used in a wide range of construction, automotive and marine applications.
- The next largest segment is the production of 1,4 butanediol (BDO), a chemical intermediate used to produce polyurethanes, tetrahydrofuran (THF), γ-butyrolactone (GBL) and polybutylene terephthalate.
- Specialty acids, principally fumaric, maleic, succinic and polyaspartic acids, are mostly used as food additives, animal feed additive, in the papermaking, textile and detergent industries, as chemical intermediates and in the UPR sector to assist in the curing of the resin.
- Lubrication oil additives are used as ash-less dispersants and corrosion inhibitors.
- Copolymers are used in the engineering plastic sector.

The MAN supply, demand, and trade on a global and regional basis (North America, South America, Western Europe, Central & Eastern Europe, Middle East & Africa and Asia Pacific) is detailed in this TECH report.

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