

## Glossary

### Chemicals

<b>AAA</b>	Alkylalkanolamines: in this report the term AAA is used to refer to MMEA, MDEA and DMAE only. These chemicals are derived from combining <b>methylamines</b> with either <b>EO</b> , <b>CO</b> or <b>methyl formate</b> , <b>hydrochloric acid</b> and <b>EO</b> . They are used in the downstream applications including water and gas treatments, and fabric softeners, dyes and pharmaceuticals.
<b>Ammonia</b>	A caustic water-soluble alkaline gas, which is commonly produced from natural gas, air and steam; formula $\text{NH}_3$ .
<b>Betaine</b>	Trimethyl glycine, a versatile molecule extracted from sugar beets, with a wide range of applications in foodstuffs, dietary supplements, pharmaceuticals, dental products, cosmetics and for fermentation purposes; $(\text{CH}_3)_3\text{NCH}_2\text{COO}$ .
<b>Choline chloride</b>	A chemical manufactured from <b>TMA</b> , <b>hydrochloric acid</b> and <b>EO</b> or <b>TMA</b> with ethylene chlorohydrin and also known as vitamin B4, used as an additive in animal feed; formula: $[(\text{CH}_3)_3\text{NCH}_2\text{CH}_2\text{OH}]\text{Cl}$ .
<b>CO</b>	Carbon monoxide: colourless, poisonous gas formed by the partial oxidization of carbon; formula $\text{CO}$ .
<b>DMA</b>	Dimethylamine: a colourless flammable gas, used as a raw material for the manufacture of <b>DMAE</b> and <b>DMF</b> , which are in turn used to manufacture products such as solvents, treatments for water effluent; formula $(\text{CH}_3)_2\text{NH}$ .
<b>DMAE</b>	Dimethylaminoethanol, also dimethylethanolamine colourless liquid manufactured from <b>DMA</b> and <b>EO</b> , used in water and effluent treatment and paper making; formula $(\text{CH}_3)_2\text{NCH}_2\text{CH}_2\text{OH}$ .
<b>DMF</b>	Dimethylformamide: a flammable liquid derived from <b>DMA</b> and <b>CO</b> or <b>methyl formate</b> used as a solvent; formula $(\text{CH}_3)_2\text{N}.\text{O}.\text{CO}.\text{H}$ .
<b>EO</b>	<b>Ethylene oxide</b> : an unstable odourless flammable gas produced by the reaction of ethene (ethylene) and oxygen, and be used directly as a sterilant, although predominately used as an intermediate for a wide range of chemicals; formula $2(\text{CH}_2)\text{O}$ .
<b>Ethanol</b>	Ethyl alcohol: a colourless liquid which is miscible with water, which is used as fuel and in a wide variety of industrial processes. Ethanol may be produced by the fermentation of sugars, or more commonly for industrial applications by the oxidation of ethene; formula $\text{CH}_3\text{CH}_2\text{OH}$ .
<b>Ethylene oxide</b>	See <b>EO</b> .
<b>Glycol</b>	Any of a class of organic compounds of the alcohol family in which two hydroxyl groups (OH) are attached to different carbon atoms.

<b>Hydrochloric acid</b>	Corrosive non-oxidizing acid soluble in benzene, alcohol, ether and water; formula HCl.
<b>Hygroscopic</b>	Having the tendency to absorb moisture from humid air.
<b>IPLAs</b>	Isopropanolamines, another class of amine derivatives, produced by reacting ammonia with propylene oxide. These can sometimes be produced in swing plants used to produce methylamines, (see glossary below).
<b>MDEA</b>	Methyldiethanolamine: a colourless liquid manufactured from <b>MMA</b> and <b>EO</b> and used in gas treatment and fabric softeners; formula $\text{CH}_3\text{N}(\text{CH}_2\text{CH}_2\text{OH})$ .
<b>Methanol</b>	Water-soluble alcohol also known as methyl alcohol, predominately produced from (methane) in natural gas and steam via syngas. Mainly used in the production of downstream derivatives such as methanal (formaldehyde), but also directly as a solvent and antifreeze; formula $\text{CH}_3\text{OH}$ .
<b>Methyl formate</b>	A clear liquid ester produced from methanol and methanoic acid (formic acid). Used primarily as an industrial solvent for coatings of fibres, especially quick-drying finishes, but may also be used in insecticides and pharmaceuticals; formula $\text{HCOOCH}_3$ .
<b>Methylamines</b>	A group of three chemicals formed by the reaction of <b>ammonia</b> and <b>methanol</b> at high temperature and pressure, namely <b>MMA</b> , <b>DMA</b> and <b>TMA</b> .
<b>Methylamine derivative</b>	A product formed from a chemical reaction involving a <b>methylamine</b> .
<b>MMA</b>	Monomethylamine: a flammable gas, manufactured from <b>methanol</b> and <b>ammonia</b> ; formula $\text{CH}_3\text{NH}_2$ .
<b>MMEA</b>	Monomethylethanolamine: a flammable liquid manufactured from <b>EO</b> and <b>MMA</b> used as brightening agent in coatings; formula $\text{CH}_3\text{NHCH}_2\text{CH}_2\text{OH}$ .
<b>Silica</b>	Silicon dioxide: found in several physical forms including silica gel, which is a granular, porous and hygroscopic form of silica made synthetically from sodium silicate; formula $\text{SiO}_2$ .
<b>Syngas</b>	Synthesis gas (syngas) produced from methane (natural gas). Syngas consists of a mixture of carbon monoxide and hydrogen.
<b>TMA</b>	Trimethylamine: a colourless extremely flammable gas manufactured from <b>EO</b> and <b>MMA</b> ; formula $(\text{CH}_3)_3\text{N}$ .
<b>VOCs</b>	Volatile organic compounds: the classification given to a group of carbon-based chemicals, usually derived from petrochemicals. VOCs readily vaporize at room temperature.

## Other terms and abbreviations

<b>Act</b>	Enterprise Act 2002.
<b>Air Products</b>	<b>APCI</b> and its subsidiary <b>APCT</b> .
<b>APCI</b>	Air Products and Chemicals Inc.
<b>APCT</b>	Air Products and Chemicals Teesside Ltd.
<b>BASF</b>	BASF Aktiengesellschaft.
<b>Billingham</b>	Former <b>ICI</b> plant for the production of <b>methylamines</b> and <b>derivatives</b> now owned by <b>Air Products</b> .
<b>Catalyst</b>	A substance that increases the rate of a chemical reaction, without being consumed or produced by the reaction.
<b>CC</b>	Competition Commission.
<b>Chocques Agreement</b>	A manufacturing agreement dated 2 February 1998 between <b>ICI C&amp;P France SA</b> (an <b>ICI</b> group company) and <b>APCT</b> . <b>APCT</b> provides <b>ICI</b> with raw materials which it converts to <b>AAAs</b> and <b>IPLAs</b> at its plant at Chocques in northern France.
<b>Debottlenecking</b>	Increasing the total capacity of a plant through a selective investment in just one part of the production process where that is currently the constraint on the overall production capacity.
<b>Dedicated plant</b>	Manufacturing plant designed for the production of a single product or chemical.
<b>EEA</b>	European Economic Area: the area comprising of the countries of the European Union, Iceland, Liechtenstein, and Norway.
<b>EM&amp;D business</b>	European Methylamines and Derivatives business.
<b>ICI</b>	Imperial Chemical Industries PLC.
<b>OFT</b>	Office of Fair Trading.
<b>PIERS</b>	United States Port Import Export Reporting Service: a database of import and export information on the cargoes moving through ports in the USA, Mexico, Latin America and Asia, collected by a private organization.
<b>R&amp;D</b>	Research and development.
<b>Reactor</b>	A piece of equipment in which an industrial chemical reaction is carried out.
<b>Regional</b>	Except where the context indicates otherwise, the term 'regional' is used to mean a geographic region which is wider than national.

<b>Swap agreement</b>	Reciprocal product exchange agreement between two companies, whereby each undertakes to supply the other's plants in a region with their own products on a like-for-like basis. (For example, company A supplies product for company B's plants in the USA; and company B supplies company A's plants in Europe.)
<b>Swing plant</b>	A chemicals production plant which can produce different products or product mixes in different campaigns. It has to be cleaned and refilled with differing feedstocks between campaigns.
<b>Taminco</b>	Taminco NV.