

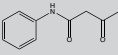
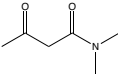
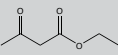
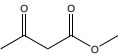
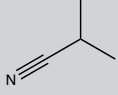
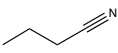
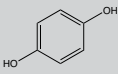
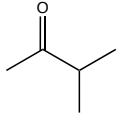
## Intermediates

Product family	Product	Acronym	CAS #	Molecular formula	Molecular weight	Physical state	Synonym	Description	Molecular structure
Acids	2-Ethylhexanol	2-EH	104-76-7	C <sub>8</sub> H <sub>18</sub> O	130.22 g/mol	Liquid	2-ethylhexyl alcohol; 2-ethyl hexanol	Eight-carbon branched-chain oxo alcohol; a versatile solvent featuring excellent reactivity as a chemical intermediate	
	Benzoic acid	BA	65-85-0	C <sub>7</sub> H <sub>6</sub> O <sub>2</sub>	122.12 g/mol	Solid	Benzenecarboxylic acid; carboxybenzene; diacylic acid; benzeneformic acid; benzenemethonic acid; phenyl carboxylic acid; phenylformic acid; retarded ba; retardex; tenn-plas; oracylic acid	Monofunctional, white crystalline aromatic acid	
	Butyric acid		107-92-6	C <sub>4</sub> H <sub>8</sub> O <sub>2</sub>	88.11 g/mol	Liquid	Ethylacetic acid, butanoic acid	Clear, colorless liquid with a strong pungent odor; naturally occurring short-chain fatty acid found in the human body, butter, and numerous other resources	
	Glacial acetic acid	GAA	64-19-7	C <sub>2</sub> H <sub>4</sub> O <sub>2</sub>	60.05 g/mol	Liquid	Ethylic acid; vinegar acid; vinegar; methanecarboxylic acid; TCLP extraction fluid 2; glacial acetic acid	Clear, colorless liquid with a strong odor of vinegar	
Aldehydes	Acetaldehyde		75-07-0	C <sub>2</sub> H <sub>4</sub> O	44.05 g/mol	Liquid	Ethanal, ethylaldehyde, aldehyde C2	Highly reactive, flammable, colorless liquid	
	Butyraldehyde		123-72-8	C <sub>4</sub> H <sub>8</sub> O	72.1 g/mol	Liquid	Butanal; butyl aldehyde; butyric aldehyde; butan-1-al	Colorless liquid with a pungent odor	
Alkylamines	Diethylamine	DEA	109-89-7	C <sub>4</sub> H <sub>11</sub> N	73.1368 g/mol	Anhydrous, liquid	Diethamine; ethanamine, N-ethyl; ethylethanamine; DEA	Anhydrous colorless liquid; has an ammonia-like odor	
	Dimethylacetamide	DMAC	127-19-5	C <sub>4</sub> H <sub>9</sub> NO	87.1204 g/mol	Liquid	DMAC; acetic acid, dimethylamide; dimethyl acetamide; acetdimethylamide; dimethylamide acetate; U-5954; acetyldimethylamine	Colorless, high-boiling, polar, hygroscopic liquid. DMAC is a good solvent	
	Dimethylamine	DMA	124-40-3	C <sub>2</sub> H <sub>7</sub> N	45.0837 g/mol	Anhydrous, liquid	N-methylmethanamine; N,N-dimethylamine	Anhydrous gas, liquefied under pressure, approx. 1.6 bar at 20°C	
	Dimethylaminopropylamine	DMAPA	109-55-7	C <sub>5</sub> H <sub>14</sub> N <sub>2</sub>	102.17 g/mol	Liquid	N,N-dimethyl-1,3-diaminopropane; N,N-dimethyl-1,3-propanediamine; DMAPA; 3-dimethylaminopropylamine; 1-(dimethylamino)-3-aminopropane; 3-(dimethylamino)-1-propylamine; N,N-dimethyltrimethylenediamine	Colorless liquid with an ammonia-like odor	

**Intermediates** (continued)

Product family	Product	Acronym	CAS #	Molecular formula	Molecular weight	Physical state	Synonym	Description	Molecular structure
Alkylamines (continued)	Di- <i>n</i> -propylamine	DNPA	142-84-7	C <sub>6</sub> H <sub>15</sub> N	101.19 g/mol	Liquid	<i>N</i> -propyl-1-propanamine, di- <i>n</i> -propylamine, dipropylamine	Colorless liquid with an ammonia-like odor	
	Monoethylamine	MEA	75-04-7	C <sub>2</sub> H <sub>7</sub> N	45.09 g/mol	Anhydrous, liquid	Aminoethane, monoethylamine, amine C2	Colorless liquid with an ammonia-like odor	
	Monoisopropylamine	MIPA	75-31-0	C <sub>3</sub> H <sub>9</sub> N	56.11 g/mol	Anhydrous, liquid	Isopropylamine; 2-aminopropane; MIPA	Colorless liquid with an ammonia-like odor	
	Monomethylamine	MMA	74-89-5	CH <sub>5</sub> N	31.06 g/mol	Anhydrous, liquid	Monomethylamine, aminomethane	Anhydrous liquefied gas, MMA 100% as aqueous solution, MMA 40% (other concentrations available on request)	
	Mono- <i>n</i> -butylamine	MNBA	109-73-9	C <sub>4</sub> H <sub>11</sub> N	73.14 g/mol	Liquid	1-Aminobutane; amine C4; Butan-1-amine; 1-butylamine; mono- <i>n</i> -butylamine; monobutylamine; 1-butanamine	Colorless liquid; has an ammonia-like odor and is miscible with water, alcohol and ether	
	Mono- <i>n</i> -propylamine	MNPA	107-10-8	C <sub>3</sub> H <sub>9</sub> N	59.11 g/mol	Liquid	1-Propanamine, 1-aminopropane, propylamine	Colorless liquid with an ammonia-like odor	
	Triethylamine	TEA	121-44-8	C <sub>6</sub> H <sub>15</sub> N	101.19 g/mol	Liquid	<i>N,N</i> -diethylethanamine; TEA; TEN; TETN; <i>N,N,N</i> -triethylamine	Colorless liquid with an ammonia-like odor	
	Trimethylamine	TMA	75-50-3	C <sub>3</sub> H <sub>9</sub> N	59.1103 g/mol	Anhydrous, liquid	<i>N,N</i> -dimethylmethanamine; <i>N,N</i> -dimethylmethamine	Anhydrous liquefied gas, TMA 100% as aqueous solution, TMA 50% (other concentrations available on request)	
	Tri- <i>n</i> -butylamine	TNBA	102-82-9	C <sub>12</sub> H <sub>27</sub> N	185.3495 g/mol	Liquid	Tris- <i>n</i> -butylamine, <i>N,N</i> -dibutyl-1-butanamine, <i>n</i> -tributylamine	Clear liquid, insoluble in water and very soluble in alcohol and ether	
	Tri- <i>n</i> -propylamine	TNPA	102-69-2	C <sub>9</sub> H <sub>21</sub> N	143.26 g/mol	Liquid	<i>N,N</i> -dipropylpropanamine	Colorless liquid with an ammonia-like odor	
Anhydrides	Acetic anhydride	AC2O	108-24-7	C <sub>4</sub> H <sub>6</sub> O <sub>3</sub>	102.09 g/mol	Liquid	Acetic acid anhydride	Colorless liquid with a strong, pungent, vinegar-like odor	
	Propionic anhydride	PA	123-62-6	C <sub>6</sub> H <sub>10</sub> O <sub>3</sub>	130.14 g/mol	Liquid	Methylacetic anhydride; propanoic anhydride; propanoic acid anhydride	Colorless liquid having a pungent odor and high boiling point	

## Intermediates (continued)

Product family	Product	Acronym	CAS #	Molecular formula	Molecular weight	Physical state	Synonym	Description	Molecular structure
Diketenes	Acetoacetanilide	AAA	102-01-2	C <sub>10</sub> H <sub>11</sub> NO <sub>2</sub>	177.2 g/mol	Solid	<i>alpha</i> -Acetylacetanilide, 3-oxo- <i>N</i> -phenybutanamide	White powder that is soluble in styrenated resins; however, agitation for 1 to 2 hours may be required for complete solution at room temperature	
	Dimethylacetoacetamide	DMAA	2044-64-6	C <sub>6</sub> H <sub>11</sub> NO <sub>2</sub>	129.16 g/mol	Liquid	Acetoacetdimethylamide, DMAA	Liquid containing 20% water	
	Ethyl acetoacetate	EAA	141-97-9	C <sub>6</sub> H <sub>10</sub> O <sub>3</sub>	130.14 g/mol	Liquid	Acetoacetic ester, ethyl 3-oxobutanoate, ethyl acetylacetate, ethyl beta-ketobutyrate; 3-oxo butyric acid ethyl ester; 3-oxobutanoic acid ethyl ester	Colorless liquid with fruit odor; tautomer at room temperature consisting of approximately 8% enol and 92% keto	
	Methyl acetoacetate	MAA	105-45-3	C <sub>5</sub> H <sub>8</sub> O <sub>3</sub>	116.12 g/mol	Liquid	Acetoacetic acid methyl ester; 3-oxo-butyric acid methyl ester; methyl 3-oxo-butyrate	Colorless liquid with characteristic odor	
Nitriles	Isobutyronitrile	IBN	78-82-0	C <sub>4</sub> H <sub>7</sub> N	69.1 g/mol	Liquid	2-Methylpropanenitrile	Colorless liquid with an almond odor. Density less than water. Vapors heavier than air.	
	<i>n</i> -Butyronitrile	NBN	109-74-0	C <sub>4</sub> H <sub>7</sub> N	69.1 g/mol	Liquid	Butanenitrile; propyl cyanide	Clear, colorless liquid at room temperature with sharp, suffocating odor resembling that of oil or bitter almonds. Warning: this compound is toxic, do NOT check its odor.	
Polyesters	Hydroquinone	HQ	123-31-9	C <sub>6</sub> H <sub>6</sub> O <sub>2</sub>	110.11 g/mol	Solid	1,4-Dihydroxybenzene, 1,4-benzenediol, quinol	White, light tan, light gray, or colorless crystalline solid; odorless	
Solvents	Methyl isopropyl ketone	MIPK	563-80-4	C <sub>5</sub> H <sub>10</sub> O	86.13 g/mol	Liquid	3-Methyl butan-2-one, MIPK; isopropyl methyl ketone; isopentanone; 2-acetylpropane; 3-methyl-2-butanone	Water-white liquid with low boiling point; used primarily as a chemical intermediate and/or process solvent	



**Eastman Chemical Company  
Corporate Headquarters**

P.O. Box 431

Kingsport, TN 37662-5280 U.S.A.

U.S.A. and Canada, 800-EASTMAN (800-327-8626)

Other Locations, +(1) 423-229-2000

[www.eastman.com/locations](http://www.eastman.com/locations)

To learn more, visit our website at [Eastman.com/agriculture](http://Eastman.com/agriculture).

Although the information and recommendations set forth herein are presented in good faith, Eastman Chemical Company and its subsidiaries make no representations or warranties as to the completeness or accuracy thereof. You must make your own determination of its suitability and completeness for your own use, for the protection of the environment, and for the health and safety of your employees and purchasers of your products. Nothing contained herein is to be construed as a recommendation to use any product, process, equipment, or formulation in conflict with any patent, and we make no representations or warranties, express or implied, that the use thereof will not infringe any patent. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS AND NOTHING HEREIN WAIVES ANY OF THE SELLER'S CONDITIONS OF SALE.

Safety Data Sheets providing safety precautions that should be observed when handling and storing our products are available online or by request. You should obtain and review available material safety information before handling our products. If any materials mentioned are not our products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be observed.

© 2017 Eastman Chemical Company. Eastman brands referenced herein are trademarks of Eastman Chemical Company or one of its subsidiaries or are being used under license. The ® symbol denotes registered trademark status in the U.S.; marks may also be registered internationally. Non-Eastman brands referenced herein are trademarks of their respective owners.