

AMINES

AN EXTENSIVE CHOICE TO MEET YOUR INDUSTRIES

■ Paints and coatings

■ Foundry resins

■ Pharmaceuticals

■ Electronics

■ Metal working

■ Agrochemicals

■ Polymerization

■ Cosmetics

■ Resins

■ Water treatment

Markets and Applications

Arkema La Chambre has been promoting specialty amines for 3 years under the brand name Alpamine®



Agrochemicals MIPA - DIPA - B2A - MEA

- > Alkylamines are important chemical intermediates for manufacturing the active ingredients of many types of herbicides, pesticides and insecticides.
- > MIPA and MEA are used as neutralizing agent to make amine salts of major herbicides (Glyphosate, Atrazine).



Adhesives, paints, resins DEA - TEA - TMPDA - DEAPA - DMAPAPA - IPOPA - Alpamine® N41 - AS1

- > DEAPA, DMAPAPA and TMPDA are specific hardeners or accelerators for paints, foams and adhesive resins.
- > TEA is often asked for the curing of urea formol resins.
- > IPOPA is used as an intermediate to manufacture dyes while the Alpamine® N41 and Alpamine® AS1 are additives in various paints formulation.



Pharmaceuticals MEA - DEA - TEA - MIPA - DIPA - EMA - EDIPA

- > Many API's require building block amines in their synthesis, a few examples of these building blocks are DIPA, MEA, DEA, MIPA, and EMA.
- > Tertiary amines can also be used as an acid scavenger in many reactions from moderate selectivity using TEA to high selectivity when using EDIPA.



Polymerization DEHA - APDEA - TMPDA - DEA - TERM-N-ATOR® P

- > Specialty amines can be served as intermediates for a wide range of monomers.
- > DEHA is widely applied as a shortstopper in the radical polymerization of rubbers.
- > Term-N-ator P exhibits outstanding properties as shortstopper and emergency killer for the polymerization of suspension PVC.



Water treatment DEHA - MOPA - Alpamine® N41

- > DEHA acts as an oxygen scavenger in steam boilers and prevents corrosion from forming on the pipes.
- > MOPA and Alpamine® N41 act as a neutralizing agent for carbonic acid in the water.



Foundry resins DMEA - DMIPA - TEA - Alpamine® F4680 - F4620 - F4520

- > Amines are used as a catalyst in the manufacturing of molds based on sand core bound by polyurethane resins.
- > Arkema proposes a wide range of tertiary amines for use in the foundry industry.
- > The Alpamine® F series enlarges our range of amines for foundry and offers a variety of different solutions to answer the evolving market requirements.



Other markets MIPA - DEAPA - MEA - DEHA - APDEA - DMAPAPA - DMEA - DMIPA - TEA - EMA

- > In addition to the markets above, Arkema provides Amine solutions for the surfactant, textile, cosmetic, perfume, oil and petrochemicals, rubber, and the electronics industries.



La Chambre plant

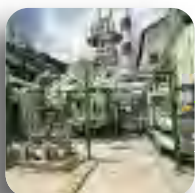


A flexible production tool to meet your current needs



Quality

Located in the heart of the Alps, Arkema has over 50 years of expertise in manufacturing amines at its facility in La Chambre, France. To meet our customer's most stringent requirements towards excellence, our plant is ISO 9001, 14001, and ISRS8 certified and continually strives to achieve the highest standards in quality and efficiency.



Core competencies

Arkema has developed core competencies in the manufacturing of amines by a variety of different processes, including alcohol amination and reductive amination of aldehydes and ketones. Our dedicated specialty amine multipurpose unit provides the flexibility to carry out many other reactions, including methylation, cyanoethylation, hydrogenation of nitriles, and high pressure hydrogenation.



Research & Development

Our research and development team is fully committed to helping our customers define their requirements and select the right amine. With our extensive pilot plant capabilities, we can help ensure a successful product development from start up to the commercial stage. We are always looking for new partnerships and ways to improve our products. Please contact us, and we will get started on finding the right amine for your specific application needs.

Sales and distribution network



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A global chemical company and France's leading chemicals producer, Arkema is building the future of the chemical industry every day. Deploying a responsible, innovation-based approach, we produce state-of-the-art specialty chemicals that provide customers with practical solutions to such challenges as climate change, access to drinking water, the future of energy, fossil fuel preservation, and the need for lighter materials. With operations in more than 40 countries, 14,000 employees and seven research centers, Arkema generates annual revenue of €5.9 billion and holds leadership positions in all its markets with a portfolio of internationally recognized brands. The world is our inspiration.

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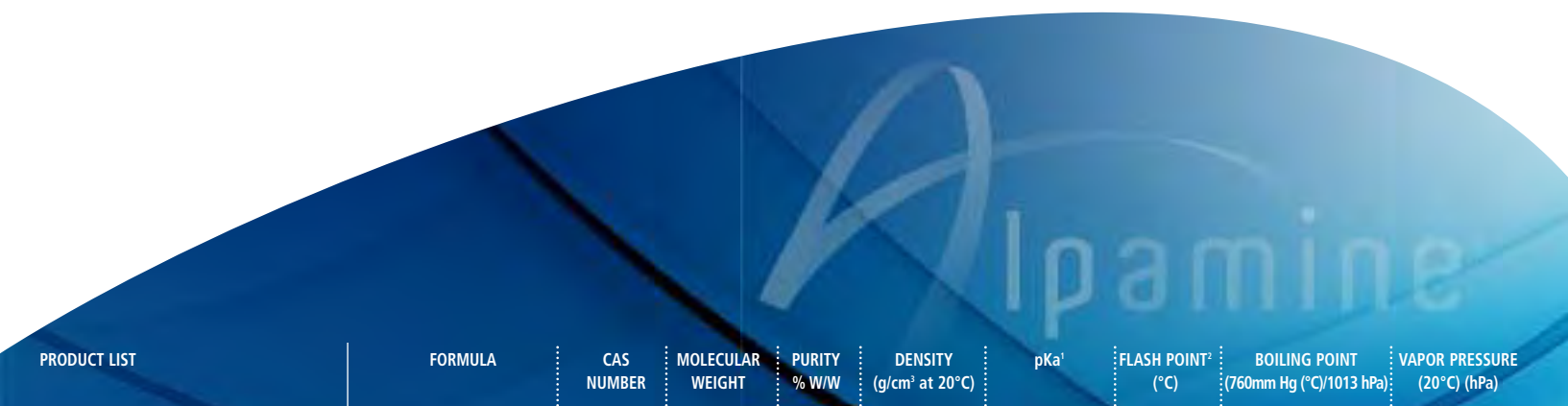
The world is our inspiration

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









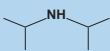
PRODUCT LIST	FORMULA	CAS NUMBER	MOLECULAR WEIGHT	PURITY % W/W	DENSITY (g/cm ³ at 20°C)	pKa ¹	FLASH POINT ² (°C)	BOILING POINT (760mm Hg (°C)/1013 hPa)	VAPOR PRESSURE (20°C) (hPa)
Specialty amines (ADS - Alpamine®)									
DEAPA (Diethylaminopropylamine)		104-78-9	130.23	≥ 99.0	0.825	10.60 / 8.56	52	169	7 (at 30°C)
DMAFAPA (Dimethylaminopropylaminopropylamine)		10563-29-8	159.27	≥ 98.5	0.870	10.47/9.15/7.33	99	220	< 1.3
IPOPA (3-Isopropoxypropylamine)		2906-12-9	117.19	≥ 98.0	0.840	10.12	42	147	40 (at 30°C)
MOPA (3-Methoxypropylamine)		5332-73-0	89.14	≥ 99.0	0.870	10.15	26	118.4	14.6
EDIPA (Ethyl-diisopropylamine)		7087-69-5	129.24	≥ 99.5	0.756	11.26	12	127	15
EMA (Ethylmethylamine)		624-78-2	59.11	≥ 99.5	0.688	11.06	-38	32.6	630
TMPDA (Tetramethylpropylenediamine)		110-95-2	130.23	≥ 99.0	0.784	9.82/7.77	31	145	12 (at 30°C)
B2A (Sec-Butylamine)		13952-84-6	73.14	≥ 99.0	0.722	10.66	-16	62.5	184
APDEA (Aminopropyl-diethanolamine)		4985-85-7	162.23	≥ 80.0	1.080		183	305	< 0.001
Alpamine® N41		35265-04-4	117.19	≥ 99.0	0.895	9.9	85	186	0.4

Foundry amines - Alpamine®									
TEA (Triethylamine)		121-44-8	101.19	≥ 99.7	0.728	10.8	-7	89.5	69
Alpamine® F4520	proprietary			≥ 99.0	0.707		< -26	57.3	256
Alpamine® F4680	proprietary			≥ 99.0	0.686		< -27	41	480
Alpamine® F4620	proprietary			≥ 99.0	0.717		-27	74	190
DMIPA (Dimethylisopropylamine)		996-35-0	87.16	≥ 99.0	0.715	10.49	-27	66	175
DMEA (Dimethylethylamine)		598-56-1	73.14	≥ 99.0	0.675	10.15	-36	36.5	530

¹ Refer to the protonated amine in aqueous solution at 25°C

² Flash points were determined by the closed cup method

PRODUCT LIST	FORMULA	CAS NUMBER	MOLECULAR WEIGHT	PURITY % W/W	DENSITY (g/cm ³ at 20°C)	PKA ¹	FLASH POINT ² (°C)	BOILING POINT (760mm Hg (°C)/1013 hPa)	VAPOR PRESSURE (20°C) (hPa)
Alkylhydroxylamines - Alpamine®									
N,N-Diethylhydroxylamine 85%, in aqueous solution (DEHA 85%)		3710-84-7	89.14	≥ 99.0*	0.900	5.61	49.5	96	36.6
N,N-Diethylhydroxylamine, (Anhydrous DEHA)		3710-84-7	89.14	≥ 98.0	0.865	5.61	46.5	132	5.3
Term-n-Ator® P		3710-84-7	89.14	≥ 99.0*	0.900	5.61	49.5	96	36.6
Alpamine® AS1	proprietary			≥ 98.0	0.892		66.5	181	0.3

Basic Alkylamines									
MEA 70% (Monoethylamine 70%, aqueous)		75-04-07	45.08	≥ 99.5*	0.86	10.80	< -24	39.5	469
DEA (Diethylamine)		109-89-7	73.14	≥ 99.5	0.705	11.07	< -28	55.5	260
TEA (Triethylamine)		121-44-8	101.19	≥ 99.7	0.728	10.80	-7	89.5	69
MIPA (Monoisopropylamine, anhydrous)		75-31-0	59.09	≥ 99.5	0.687	10.72	-35	32	630
MIPA 70% (Monoisopropylamine 70%, aqueous)		75-31-0	59.09	≥ 99.5*	0.806	10.72	-21	53	290
DIPA (Diisopropylamine)		108-18-9	101.19	≥ 99.5	0.716	11.16	-13.5	83	69
* Organic purity ¹ Refer to the protonated amine in aqueous solution at 25°C ² Flash point were determined by the closed cup method									

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