



Market Offerings

Diketene & HCN Derivatives, Heterocycles &
Basic Chemicals Network



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About Lonza

Lonza is one of the world's leading and most-trusted suppliers to the pharmaceutical, biotech and specialty ingredients markets. We harness science and technology to create products that support safer and healthier living and that enhance the overall quality of life.

Not only are we a custom manufacturer and developer, Lonza also offers services and products ranging from active pharmaceutical ingredients and stem-cell therapies to drinking water sanitizers, from vitamin B3 compounds and organic personal care ingredients to agricultural products, and from industrial preservatives to microbial control solutions that combat dangerous viruses, bacteria and other pathogens.

Founded in 1897 in the Swiss Alps, Lonza today is a well-respected global company with more than 40 major manufacturing and R&D facilities and approximately 9,800 full-time employees worldwide. The company generated sales of CHF 3.8 billion in 2015 and is organized into two market-focused segments: Pharma&Biotech and Specialty Ingredients. Further information can be found at www.lonza.com

Our teams are continuously working to expand this product portfolio. For further information, please contact your Lonza representative or reach our team at performance.intermediate@lonza.com



Diketenes/Ketenes

Diketene is a colorless liquid produced by dimerization of ketene. It is a highly reactive building block that can be combined with numerous other chemical compounds to make a wide range of products. Because of its high reactivity, transport of diketene is forbidden. Lonza is a leading supplier of diketene derivatives, which is manufactured in its production facility in Visp, Switzerland. Our diketene derivatives are mainly used in the pharmaceutical, vitamin and agrochemical industries as well as in niche markets like cosmetics, plasticizers and paints. The acetoacetyl group has a broad functionality that can be used for the production of further products. Lonza's most comprehensive diketene product lines are those made with alcohols (acetoacetic acid and acrylate derivatives), aliphatic amines (alkylamides) and aromatic amines (arylamides).

The following summary provides an overview of the diketene derivative product groups:

Diketene Esters (Acetoacetates)

Major diketene derivatives such as methyl-, ethyl-, isopropyl-esters of acetoacetic acid are used in the dye, agrochemical, pharmaceutical and vitamin industries.

Alkylamides

Aliphatic amines react with diketene to result in alkylamides. Mono-methyl- or dimethylacetoacet- amides are the major products and are produced as aqueous solutions, other derivatives and water-free compounds. The alkylacetoacetamides are used as intermediates to manufacture insecticides as well as for pigment, pharmaceutical and polymer industry applications.

Lonzamon AAEMA is used as a copolymer for coatings and adhesives in emulsion polymerization (waterborne dispersions) or solvent polymerization (high solids) and provides improved mechanical and solvent resistance to water or organic solvents. It also promotes adhesion to metallic, mineral and wood surfaces.

Other Diketene Derivatives

4-Chloroacetoacetic acid ester is a highly versatile diketene derivative. It can be used in syntheses of various pharmaceutical intermediates.

Ketene

Lonza has the specific capability to perform a variety of reactions with ketene. The production of ethyl 4, 4, 4-trifluoroacetoacetate is one example for such a ketene reaction.

For more information about ketene /diketene chemistry and its various derivatives, please ask for specific brochures and related literature or contact us at performance.intermediate@lonza.com

Hydrogen Cyanide (HCN)

Hydrogen cyanide is an extremely poisonous, colorless or pale-blue liquid that undergoes a wide variety of reactions. Lonza has manufacturing capabilities to offer a solution of hydrogen cyanide in water (hydrocyanic acid) and can produce its derivatives. HCN is used in metallurgical and photographic processes. Furthermore, HCN is a starting material for cyanogen chloride, cyanoacetates, cyanohydrins, sodium cyanide, chelating agents and many more. Cyanogen chloride is a functional building block for other Lonza products like cyanuric chloride and malononitrile. The cyanohydrins, give access to a variety of useful organic compounds, including the monomer methyl methacrylate, amino acids via the Strecker synthesis, and the chelating agents EDTA and NTA.

Basic Chemicals

Beside ketene and HCN chemicals Lonza's cracker-related product portfolio also offers a selective number of basic chemicals. These chemicals can be used as starting materials and processed further to yield coatings, colorants, adhesives, medicines, agrochemicals and more.

Alkylated Products

Alkylated products are value-added aromatic intermediates for the manufacture of active ingredients for the agricultural industry as well as for various industrial applications. This technology provides the ability to process ethylene, propylene and further alkenes for production of a broad range of alkylated aromatic structures.

Pyromellitic Dianhydride (PMDA)

Pyromellitic Anhydride (PMDA) is produced in Nanjing, China and is a raw material for heat-resistant polyimide resins, films and coatings. PMDA is mainly applied as an intermediate for polyimide films as well as polyimide-based composite materials in flexible printed circuit boards, tape automated bonding, magnetic wire insulation, and other high performance applications. It is also used as a curing agent for epoxy resins used in molding powders (to produce components for seal rings, thrust washers, special gaskets or thermal and electrical insulators), adhesives and coatings.

New Business Development

Beside catalogue products Performance Products provides a broad technology platform for customer-based manufacturing.

Key Reagents – Visp Site

In-House Reagents

Hydrocyanic acid 100%
Cyanogen chloride
Ketene, Diketene
Ethylene, Acetylene
Carbon monoxide
Hydrochloric acid 100%
Hydrogen / Ammonia
Ozone
Phosgene

Purchased Reagents

Propylene
Chlorine
Halogenation
Bromine
Methylbromide
Sodium in liq. NH₃
Thionyl chloride

Process Technologies

Alkylation
Amination
Ammonoxidation
Carbonylation
C-C bond formation
Diazotation
Diels-Alder addition
Esterification
Ethoxylations
Friedel-Crafts reaction
Halogenation (Cl, Br)
Hydration
Hydrogenation
Isomerization
Oxidation
Ozonolysis
Phosgenation
Quaternization
Reduction with metal or metal hydride

Project Process

The new business development process shown below illustrates the time aspects of the project at Performance Intermediate based on different phases from inquiry to commercialization.

Regulatory

Lonza's regulatory expertise allow us to support customers globally with solutions that are in compliance with the requirements of the highest regulatory, environmental and safety standards (e.g REACH).

Evaluation

- Complete feasibility study
- Initial laboratory experiments
- Detailed cost calculation
- Project proposal:
 - Milestones
 - Timelines
 - Pricing

Pre-Evaluation

- Feasibility in existing assets
- Gap analysis
- Empirical cost estimate
- Price indication

Customer Inquiry

- Exact structure & specifications
- Quantity range & forecast
- Target price



Product Overview

Product	Abbreviation	CAS#	Packaging	Market / Page
A				
Acetaldehyde	AcAl, KCS, CS, S	75-07-0	drums, bulk	20, 24
Acetic acid [glacial] 99 %, 80%	ES 99, 80	64-19-7	drums, bulk	10, 12, 14, 18, 24
Acetic anhydride	ESanhydrid	108-24-7	drums, bulk	24
Acetoacet-4-chloro-2,5-dimethoxyanilide	ASIRG	4433-79-8	paper bags	11
Acetoacet-5-chloro-2-methoxy- anilide	AAMOC	52793-11-0	paper bags	11
Acetoacetamide	AAMid	5977-14-0	paper bags	11, 13, 22
Akolidine(TM) 10	Pyridine, alkyl derivatives	68391-11-7	drums, bulk	17, 21, 24
Akolidine(TM) 11	Pyridine, alkyl derivatives	68391-11-7	drums, bulk	17, 21, 24
Akolidine(TM) 12	Pyridine, alkyl derivatives	68391-11-7	drums, bulk	17, 21, 24
Allyl cyanoacetate	CNESallyl	13361-32-5	drums	9, 23
Ammonia aqueous approx. 24.5–24.9 % chemically pure	Ammonia 24.5 r	1336-21-6	drums	10
Ammonia aqueous 25 %	Ammonia 25	1336-21-6	drums, bulk	14, 25
Ammonia anhydrous	Ammonia comp.	7664-41-7	bulk	14, 24
2-(Acetoacetoxy) ethylmethacrylate	AAEMA	21282-97-3	drums	18, 19, 22
3-Aminocrotonitrile	Diacetonitril	1118-61-2	drums	12
B				
Butyl cyanoacetate	CNESbutyl	5459-58-5	drums	9
1,4-Butyleneglycolbis[3-aminocrotonate]	BGAC	14205-47-1	bag in box	19
C				
Chlorosulfonyl isocyanate	CSI	1189-71-5	drums, bulk	9, 14, 23
Cyanuric chloride A	CC A	108-77-0	bag in box	12, 14, 23
Cyanuric chloride AL	CC AL	108-77-0	bulk	12, 14, 23
Cyanuric chloride AS	CC AS	108-77-0	big bags	12, 14, 23
D				
Dehydroacetic acid	DHS	520-45-6	paper bags	17, 22
Dehydroacetic acid, sodium salt	DHS-Na	4418-26-2	drums	17, 22
Diacetoacet-1,4-phenylenediamide	DiAAphendiam	24731-73-5	paper bags	11
Diacetoacet-2,5-dichloro-1,4-phenylenediamide	DiAA DC	42487-09-2	paper bags	11
Diacetoacet-2,5-dimethyl-1,4- phenylenediamide	DiAA DM	24304-50-5	paper bags	12
Diacetoacet-2-chloro-5-methyl-1,4-phenylenediamide	DiAA MC	41131-65-1	paper bags	12
Diketene-acetone adduct	DAA	5394-63-8	drums	8, 12, 13, 16, 19, 20, 21, 22
2,6-Diethyl-4-methylaniline	DEMA	24544-08-9	drums, bulk	12, 15, 25
2,6-Diisopropylaniline	DIPA, DIPA HQ	24544-04-5	drums, bulk	15, 18, 25
3,5-Dimethylpyrazole	DMP	67-51-6	drums, big bags	11, 17
E				
Ethyl 4,4,4-trifluoroacetoacetate (ETFAA)	ETFAA	372-31-6	drums	8, 13, 22
Ethyl 4-chloroacetoacetate	CAAEt	638-07-3	drums	8, 13, 22
Ethyl acetoacetate	EAA	141-97-9	drums, bulk	8, 11, 13, 17, 20, 22
Ethyl benzoylacetate-98 %	BESethyl 98%	94-02-0	drums	8, 11
5-Ethyl-2-methylpyridine	MEP	104-90-5	iron drums	9, 14, 24

Product	Abbreviation	CAS#	Packaging	Page
I				
Isobutyl acetoacetate	Aaisobutyl	7779-75-1	drums	8
Isopropyl acetoacetate	IPAA	542-08-5	drums, bulk	8, 11, 13, 22
L				
Lonzacure	DETTA 80, LC, LT	68479-98-1	drums, bulk	18, 19, 21, 25
M				
Malonic acid	MA	141-82-2	bags	10, 25
Malononitrile	MDN	109-77-3	drums	9, 12, 14, 16, 23
Malononitrile (85 % in methanol)	MDN 85	109-77-3	drums, bulk	9, 14, 16, 23
Meldrums'acid	Meldrums	2033-24-1	bag in box	10
Methyl 3-aminocrotonate	ACMe	14205-39-1	drums	8
Methyl acetoacetate	MAA	105-45-3	drums, bulk	8, 11, 17
Methylbutinol	MBI	115-19-5	bulk	10, 15, 21, 25
(E)-Methyl 3-methoxyacrylate	E-MMA 98	5788-17-0	drums, bulk	13, 22
2-Methoxyethyl acetoacetate	AAMethoxyethyl	22502-03-0	drums	8, 22
2-Methoxyethyl cyanoacetate	CNESmethoxyet	10258-54-5	drums, bulk	23
2-Methylbutyronitrile	BN,2-Me 80	18936-17-9	drums	20, 25
N				
N,N-Diethylacetoacetamide	DEAA	2235-46-3	drums, bulk	13, 18
N,N-Dimethylacetoacetamide	DMAA-80,95,80 LC, 95 LC	2044-64-6	drums, bulk	13, 18
Nitric acid 60%, 65 %, 68.5% & conc.	Nitric Acid 60, 65, 68, conc.	7697-37-2	bulk	15, 25
Nitrosylsulfuric acid 40 %	NOS 40	7782-78-7	bulk	25
N-Methylacetoacetamide	MMAA, ME > 70	20306-75-6	drums, bulk	11, 13
4-Nitrobenzyl acetoacetate (30 % in toluene)	PNBAA 30T	61312-84-3	drums	8
P				
Paraldehyde	PARA	123-63-7	iron drums, bulk	9, 20, 24
PMDA	PMDA	89-32-7	drums	18, 19
Potassium N-(acetoacetyl)sulfanilate	AASulfanil-K	70321-85-6	paper bags, big bags	11
Propane-1,1,1-triyltrimethyl tris(acetoacetate)	AATMP	22208-25-9	drums	19
Pyrimidine (<0.5 % water)	Pyrimidine W<0.5	289-95-2	drums	14, 24
2-Picoline	Picoline, 2	109-06-8	iron drums, bulk	9, 14, 17, 23
4-Picoline	Picoline, 4	108-89-4	iron drums	9, 23
S				
Sodium dicyanamide	Na-dicyanamide	1934-75-4	drums, big bags on request	9
Squaric acid	QS	2892-51-5	drums	9, 12, 23
T				
t-Butyl acetoacetate	TBAA	1694-31-1	drums	8, 13, 17, 22
Thiodiglycolbis[3-aminocrotonate]	TGAC	13560-49-1	fibre container	19
1,1,3,3-Tetramethylguanidine	TMG	80-70-6	drums, bulk	9, 17, 23
2,4,6-Triisopropylaniline	TRIPA	21524-36-7	drums,bulk	19, 25
V				
Valeronitrile	VN	110-59-8	drums, bulk	10

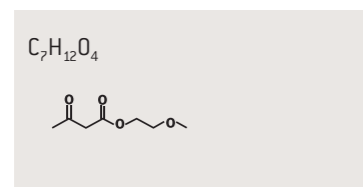


Pharma



2-Methoxyethyl acetoacetate

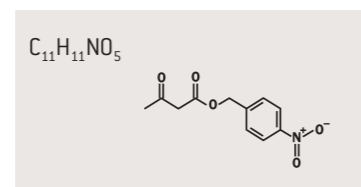
(AAMethoxyethyl)



Molecular weight	160.16
CAS Nr	22502-03-0
Minimum assay	97.5%
Minimum stability	2 years

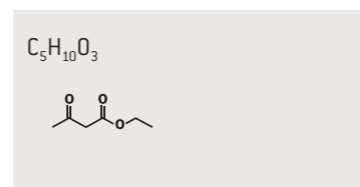
4-Nitrobenzyl acetoacetate

(30% in toluene) (PNBAA 30T)



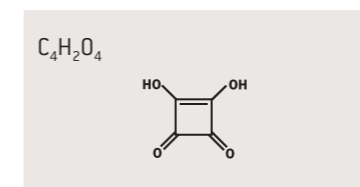
Molecular weight	237.21
CAS Nr	61312-84-3
Minimum assay	270-330 g/l
Minimum stability	9 months

Ethyl acetoacetate (EAA)



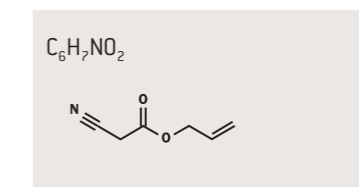
Molecular weight	130.14
CAS Nr	141-97-9
Minimum assay	99.0%
Minimum stability	2 years

Squaric acid (QS)



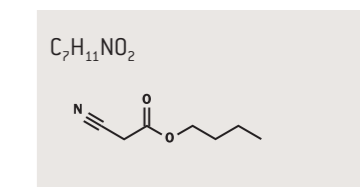
Molecular weight	114.06
CAS Nr	2892-51-5
Minimum assay	98.5%
Minimum stability	2 years

Allyl cyanoacetate (CNESallyl)



Molecular weight	125.13
CAS Nr	13361-32-5
Minimum assay	99.0%
Minimum stability	2 years

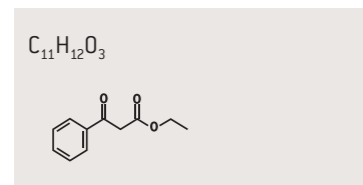
Butyl cyanoacetate (CNESbutyl)



Molecular weight	141.17
CAS Nr	5459-58-5
Minimum assay	99.0%
Minimum stability	2 years

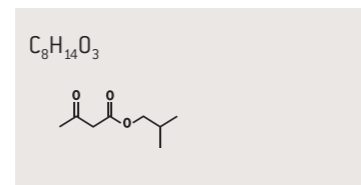
Ethyl benzoylacetate-98

(BESethyl 98%)



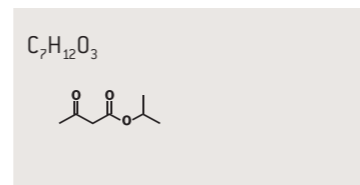
Molecular weight	192.22
CAS Nr	94-02-0
Minimum assay	98.0%
Minimum stability	2 years

Isobutyl acetoacetate (AAisobutyl)



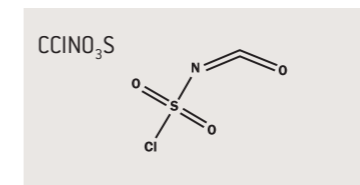
Molecular weight	158.20
CAS Nr	7779-75-1
Minimum assay	98.0%
Minimum stability	2 years

Isopropyl acetoacetate (IPAA)



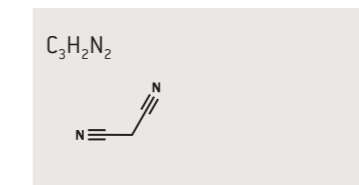
Molecular weight	144.17
CAS Nr	542-08-5
Minimum assay	98.5%
Minimum stability	2 years

Chlorosulfonyl isocyanate (CSI)



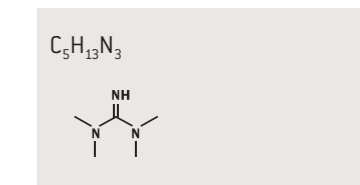
Molecular weight	141.53
CAS Nr	1189-71-5
Minimum assay	99.0-100.3%
Minimum stability	1 year

Malononitrile (MDN)



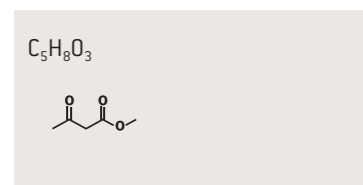
Molecular weight	66.06
CAS Nr	109-77-3
Minimum assay	99.0%
Minimum stability	18 months

1,1,3,3-Tetramethylguanidine (TMG)



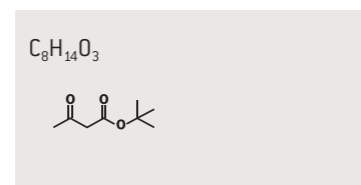
Molecular weight	115.18
CAS Nr	80-70-6
Minimum assay	99.0%
Minimum stability	1 year

Methyl acetoacetate (MAA)



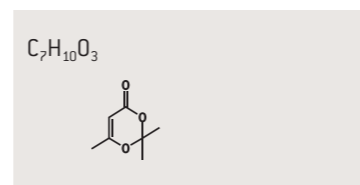
Molecular weight	116.12
CAS Nr	105-45-3
Minimum assay	99.0%
Minimum stability	2 years

t-Butyl acetoacetate (TBAA)



Molecular weight	158.20
CAS Nr	1694-31-1
Minimum assay	98.0%
Minimum stability	2 years

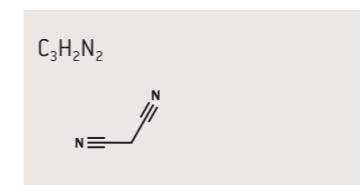
Diketene-acetone adduct (DAA)



Molecular weight	142.16
CAS Nr	5394-63-8
Minimum assay	93.0%
Minimum stability	3 months

Malononitrile (85% in methanol)

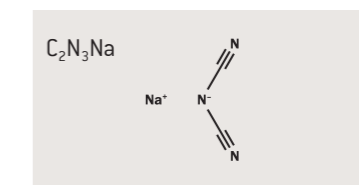
(MDN 85)



Molecular weight	66.06
CAS Nr	109-77-3
Minimum assay	99.0%
Minimum stability	18 months

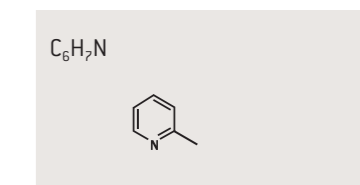
Sodium dicyanamide

(Na-dicyanamide)



Molecular weight	89.03
CAS Nr	1934-75-4
Minimum assay	≥97.0%
Minimum stability	2 years

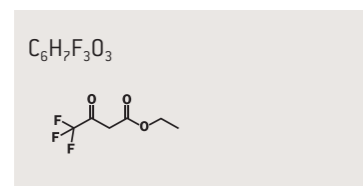
2-Picoline (Picoline,2)



Molecular weight	93.13
CAS Nr	109-06-8
Minimum assay	99.0%
Minimum stability	2 years

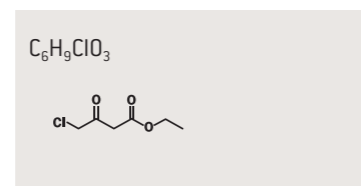
Ethyl 4,4,4-trifluoroacetoacetate

(ETFAA)



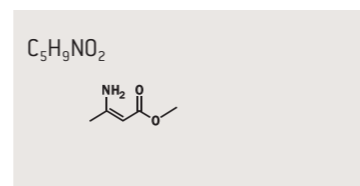
Molecular weight	184.12
CAS Nr	372-31-6
Minimum assay	98.0%
Minimum stability	6 months

Ethyl 4-chloroacetoacetate (CAAET)



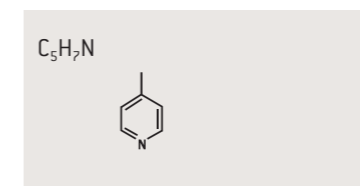
Molecular weight	164.59
CAS Nr	638-07-3
Minimum assay	97.0%
Minimum stability	1 year

Methyl 3-aminocrotonate (ACMe)



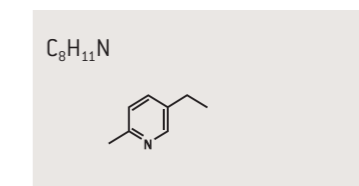
Molecular weight	115.13
CAS Nr	14205-39-1
Minimum assay	98.0%
Minimum stability	18 months

4-Picoline (Picoline,4)



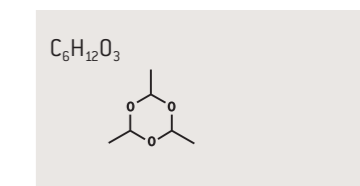
Molecular weight	93.13
CAS Nr	108-89-4
Minimum assay	>98.0%
Minimum stability	2 years

5-Ethyl-2-methylpyridine (MEP)



Molecular weight	121.18
CAS Nr	104-90-5
Minimum assay	96%
Minimum stability	1 year

Paraldehyde (PARA)



Molecular weight	132.16
CAS Nr	123-63-7
Minimum assay	99.5%
Minimum stability	60 days



Colorants

Acetic acid (glacial) (ES 99, 80)



Molecular weight	60.05
CAS Nr	64-19-7
Minimum assay	80.0%
Minimum stability	2 years

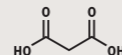
Ammonia aqueous (Ammonia 24,5 r)

approx. 24.5–24.9% chemically pure



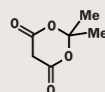
Molecular weight	17.03
CAS Nr	1336-21-6
Minimum assay	24.5–24.9%
Minimum stability	2 years

Malonic acid (MA)



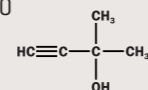
Molecular weight	104.06
CAS Nr	141-82-2
Minimum assay	99.0%
Minimum stability	1 year

Meldrums' acid (Meldrums)



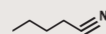
Molecular weight	144.13
CAS Nr	2033-24-1
Minimum assay	99.0%
Minimum stability	6 months

Methylbutinol (MBI)



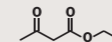
Molecular weight	84.12
CAS Nr	115-19-5
Minimum assay	99.9%
Minimum stability	2 years

Valeronitrile (VN)



Molecular weight	83.13
CAS Nr	110-59-8
Minimum assay	99.5%
Minimum stability	2 years

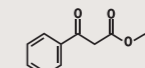
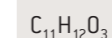
Ethyl acetoacetate (EAA)



Molecular weight	130.14
CAS Nr	141-97-9
Minimum assay	99.0%
Minimum stability	2 years

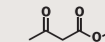
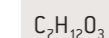
Ethyl benzoylacetate-98

(BESethyl 98%)



Molecular weight	192.22
CAS Nr	94-02-0
Minimum assay	98.0%
Minimum stability	2 years

Isopropyl acetoacetate (IPAA)



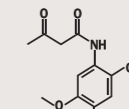
Molecular weight	144.17
CAS Nr	542-08-5
Minimum assay	98.5%
Minimum stability	2 years

Methyl acetoacetate (MAA)



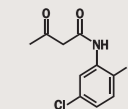
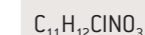
Molecular weight	116.12
CAS Nr	105-45-3
Minimum assay	99.0%
Minimum stability	2 years

Acetoacet-4-chloro-2,5-dimethoxy-anilide (ASIRG)



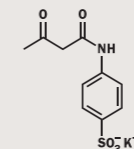
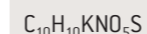
Molecular weight	271.70
CAS Nr	4433-79-8
Minimum assay	98.0%
Minimum stability	2 years

Acetoacet-5-chloro-2-methoxy-anilide (AAMOC)



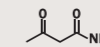
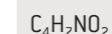
Molecular weight	241.68
CAS Nr	52793-11-0
Minimum assay	99.0%
Minimum stability	2 years

Potassium N-(acetoacetyl)sulfanilate (AAsulfanil-K)



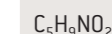
Molecular weight	295.36
CAS Nr	70321-85-6
Minimum assay	96.0%
Minimum stability	2 years

Acetoacetamide (AAmid)



Molecular weight	101.11
CAS Nr	5977-14-0
Minimum assay	98.5%
Minimum stability	18 months

N-Methylacetoacetamide (MMAA, ME >70)



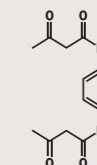
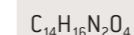
Molecular weight	115.13
CAS Nr	20306-75-6
Minimum assay	70.0%
Minimum stability	2 months

3,5-Dimethylpyrazole (DMP)



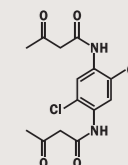
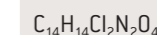
Molecular weight	96.13
CAS Nr	67-51-6
Minimum assay	99.0%
Minimum stability	3 years

Diacetoacet-1,4-phenylenediamide (DiAAphendiam)



Molecular weight	276.29
CAS Nr	24731-73-5
Minimum assay	98.5%
Minimum stability	2 years

Diacetoacet-2,5-dichloro-1,4-phenylenediamide (DiAA DC)



Molecular weight	345.18
CAS Nr	42487-09-2
Minimum assay	97.0%
Minimum stability	5 years



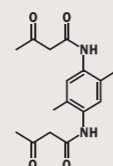
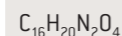
Colorants

Acetaldehyde (AcAl, KCS, CS, S)



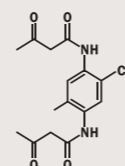
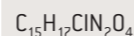
Molecular weight	44.05
CAS Nr	75-07-0
Minimum assay	99.5%
Minimum stability	1 year

Diacetoacet-2,5-dimethyl-1,4-phenylenediamide (DiAA DM)



Molecular weight	304.38
CAS Nr	24304-50-5
Minimum assay	98.0%
Minimum stability	2 years

Diacetoacet-2-chloro-5-methyl-1,4-phenylenediamide (DiAA MC)



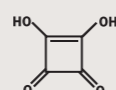
Molecular weight	324.77
CAS Nr	41131-65-1
Minimum assay	97.0%
Minimum stability	5 years

Diketene-acetone adduct (DAA)



Molecular weight	142.16
CAS Nr	5394-63-8
Minimum assay	93.0%
Minimum stability	3 months

Squaric acid (OS)



Molecular weight	114.06
CAS Nr	2892-51-5
Minimum assay	98.5%
Minimum stability	2 years

Cyanuric chloride A (CCA)



Molecular weight	184.41
CAS Nr	108-77-0
Minimum assay	99.5%
Minimum stability	6 months

Cyanuric chloride AL (CC AL)



Molecular weight	184.41
CAS Nr	108-77-0
Minimum assay	99.50%
Minimum stability	6 months

Cyanuric chloride AS (CC AS)



Molecular weight	184.41
CAS Nr	108-77-0
Minimum assay	99.5%
Minimum stability	6 months

Malononitrile (MDN)



Molecular weight	66.06
CAS Nr	109-77-3
Minimum assay	99.0%
Minimum stability	18 months

3-Aminocrotononitrile (Diacetonitril)



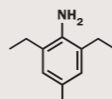
Molecular weight	82.11
CAS Nr	1118-61-2
Minimum assay	96.0%
Minimum stability	8 months

Acetic acid (glacial) (ES 99, 80)



Molecular weight	60.05
CAS Nr	64-19-7
Minimum assay	80.0%
Minimum stability	2 years

2,6-Diethyl-4-methylaniline (DEMA)

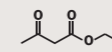


Molecular weight	163.26
CAS Nr	24544-08-9
Minimum assay	>98.0%
Minimum stability	1 year



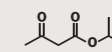
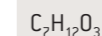
Agro

Ethyl acetoacetate (EAA)



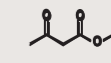
Molecular weight	130.14
CAS Nr	141-97-9
Minimum assay	99.0%
Minimum stability	2 years

Isopropyl acetoacetate (IPAA)



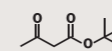
Molecular weight	144.17
CAS Nr	542-08-5
Minimum assay	98.5%
Minimum stability	2 years

Methyl acetoacetate (MAA)



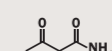
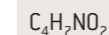
Molecular weight	116.12
CAS Nr	105-45-3
Minimum assay	99.0%
Minimum stability	2 years

t-Butyl acetoacetate (TBAA)



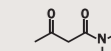
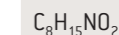
Molecular weight	158.20
CAS Nr	1694-31-1
Minimum assay	98.0%
Minimum stability	2 years

Acetoacetamide (AAmid)



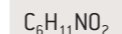
Molecular weight	101.11
CAS Nr	5977-14-0
Minimum assay	98.5%
Minimum stability	18 months

N,N-Diethylacetoacetamide (DEAA)



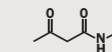
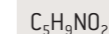
Molecular weight	157.21
CAS Nr	2235-46-3
Minimum assay	98.0%
Minimum stability	3 months

N,N-Dimethylacetoacetamide (DMAA-80,95, 80 LC, 95 LC)



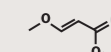
Molecular weight	129.16
CAS Nr	2044-64-6
Minimum assay	80.0%
Minimum stability	6 months

N-Methylacetoacetamide (MMAA, ME > 70)



Molecular weight	115.13
CAS Nr	20306-75-6
Minimum assay	70.0%
Minimum stability	2 months

[E]-Methyl 3-methoxyacrylate (E-MMA 98)



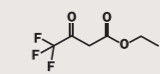
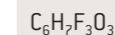
Molecular weight	116.12
CAS Nr	34846-90-7, 5788-17-0 (linear structure)
Minimum assay	≥98.0%
Minimum stability	2 years

Diketene-acetone adduct (DAA)



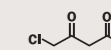
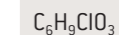
Molecular weight	142.16
CAS Nr	5394-63-8
Minimum assay	93.0%
Minimum stability	3 months

Ethyl 4,4,4-trifluoroacetoacetate (ETFAA)

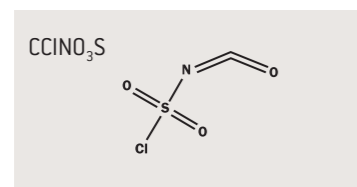


Molecular weight	184.12
CAS Nr	372-31-6
Minimum assay	98.0%
Minimum stability	6 months

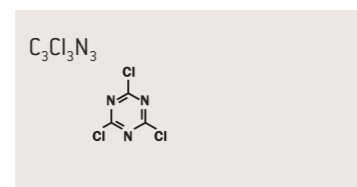
Ethyl 4-chloroacetoacetate (CAAET)



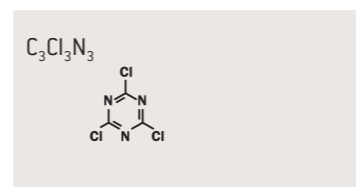
Molecular weight	164.59
CAS Nr	638-07-3
Minimum assay	97.0%
Minimum stability	1 year

Chlorosulfonyl isocyanate (CSI)


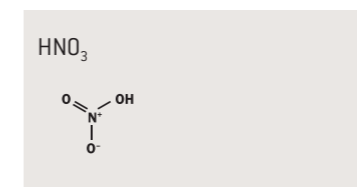
Molecular weight	141.53
CAS Nr	1189-71-5
Minimum assay	99.0–100.3%
Minimum stability	1 year

Cyanuric chloride A (CC A)


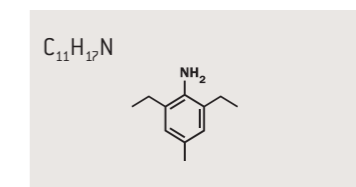
Molecular weight	184.41
CAS Nr	108-77-0
Minimum assay	99.5%
Minimum stability	6 months

Cyanuric chloride AL (CC AL)


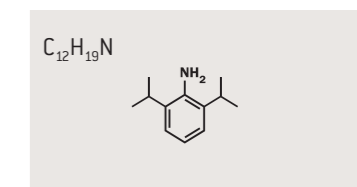
Molecular weight	184.41
CAS Nr	108-77-0
Minimum assay	99.5%
Minimum stability	6 months

Nitric acid 60%, 65 %, 68.5% & conc.


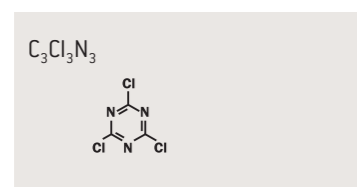
Molecular weight	63.01
CAS Nr	7697-37-2
Minimum assay	60.0%
Minimum stability	1 year

2,6-Diethyl-4-methylaniline (DEMA)


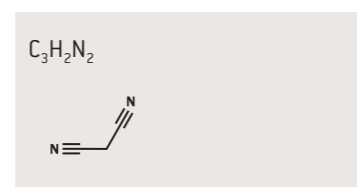
Molecular weight	163.26
CAS Nr	24544-08-9
Minimum assay	>98.0%
Minimum stability	1 year

2,6-Diisopropylaniline (DIPA, DIPA HO)


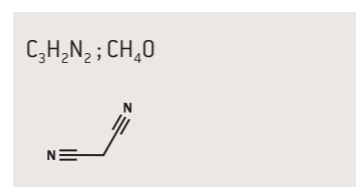
Molecular weight	177.29
CAS Nr	24544-04-5
Minimum assay	92.0%
Minimum stability	1 year

Cyanuric chloride A (CCAS)


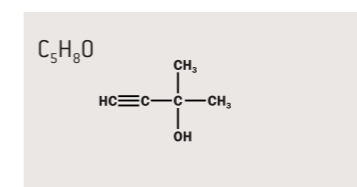
Molecular weight	184.41
CAS Nr	108-77-0
Minimum assay	99.5%
Minimum stability	6 months

Malononitrile (MDN)


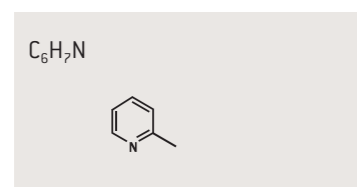
Molecular weight	66.06
CAS Nr	109-77-3
Minimum assay	99.0%
Minimum stability	18 months

Malononitrile (85% in methanol) (MDN 85)


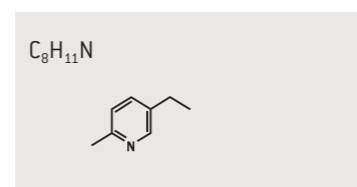
Molecular weight	98.11
CAS Nr	109-77-3
Minimum assay	83.5–86.5%
Minimum stability	2.5 months

Methylbutinol (MBI)


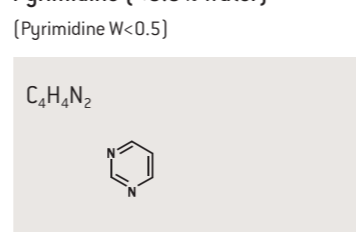
Molecular weight	84.12
CAS Nr	115-19-5
Minimum assay	99.0%
Minimum stability	2 years

2-Picoline (Picoline,2)


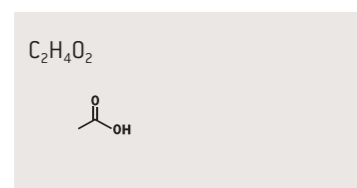
Molecular weight	93.13
CAS Nr	109-06-8
Minimum assay	99.0%
Minimum stability	2 years

5-Ethyl-2-methylpyridine (MEP)


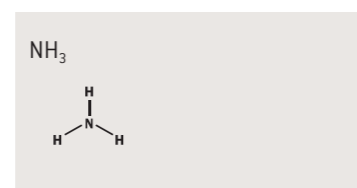
Molecular weight	121.18
CAS Nr	104-90-5
Minimum assay	96%
Minimum stability	1 year

Pyrimidine (<0.5% water)


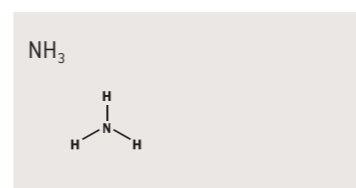
Molecular weight	80.09
CAS Nr	289-95-2
Minimum assay	98.5–100.0%
Minimum stability	2 years

Acetic acid (glacial) (ES 99, 80)


Molecular weight	60.05
CAS Nr	64-19-7
Minimum assay	80.0%
Minimum stability	2 years

Ammonia anhydrous (Ammonia comp.)


Molecular weight	17.03
CAS Nr	7664-41-7
Minimum assay	99.9%
Minimum stability	2 years

Ammonia aqueous 25% (Ammonia 25)


Molecular weight	17.03
CAS Nr	1336-21-6
Minimum assay	25.0%
Minimum stability	2 years



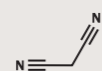
Nutrition

Diketene-acetone adduct (DAA)



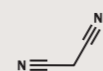
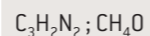
Molecular weight	142.16
CAS Nr	5394-63-8
Minimum assay	93.0%
Minimum stability	3 months

Malononitrile (MDN)



Molecular weight	66.06
CAS Nr	109-77-3
Minimum assay	99.0%
Minimum stability	18 months

Malononitrile (85 % in methanol) (MDN 85)

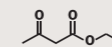
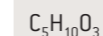


Molecular weight	98.11
CAS Nr	109-77-3
Minimum assay	83.5–86.5%
Minimum stability	2.5 months



Coatings and Composites

Ethyl acetoacetate (EAA)



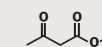
Molecular weight	130.14
CAS Nr	141-97-9
Minimum assay	99.0%
Minimum stability	2 years

Methyl acetoacetate (MAA)



Molecular weight	116.12
CAS Nr	105-45-3
Minimum assay	99.0%
Minimum stability	2 years

t-Butyl acetoacetate (TBAA)



Molecular weight	158.20
CAS Nr	1694-31-1
Minimum assay	98.0%
Minimum stability	2 years

3,5-Dimethylpyrazole (DMP)



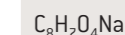
Molecular weight	96.13
CAS Nr	67-51-6
Minimum assay	99.0%
Minimum stability	3 years

Dehydroacetic acid (DHS)



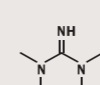
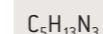
Molecular weight	168.15
CAS Nr	520-45-6
Minimum assay	99.0%
Minimum stability	2 years

Dehydroacetic acid, sodium salt (DHS-Na)



Molecular weight	190.13
CAS Nr	4418-26-2
Minimum assay	99.0%
Minimum stability	2 years

1,1,3,3-Tetramethylguanidine (TMG)



Molecular weight	115.18
CAS Nr	80-70-6
Minimum assay	99.0%
Minimum stability	1 year

2-Picoline (Picoline,2)



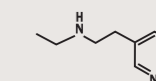
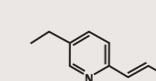
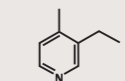
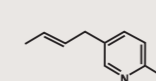
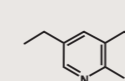
Molecular weight	93.13
CAS Nr	109-06-8
Minimum assay	99.0%
Minimum stability	2 years

Akolidine™ 10 (Pyridine, alkyl derivatives)

Akolidine™ 11 (Pyridine, alkyl derivatives)

Akolidine™ 12 (Pyridine, alkyl derivatives)

All akolidines contain the following components:



Molecular weight	-	-	-
CAS Nr	68391-11-7	68391-11-7	68391-11-7
Minimum assay	-	-	-
Minimum stability	2 years	2 years	2 years

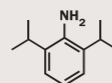


Acetic acid (glacial) (ES 99, 80)



Molecular weight	60.05
CAS Nr	64-19-7
Minimum assay	80.0 %
Minimum stability	2 years

2,6-Diisopropylaniline (DIPA, DIPA HQ)

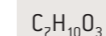


Molecular weight	177.29
CAS Nr	24544-04-5
Minimum assay	92.0 %
Minimum stability	1 year

Polyester Resins

Polyurethane

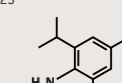
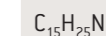
Diketene-acetone adduct (DAA)



Molecular weight	
CAS Nr	
Minimum assay	
Minimum stability	

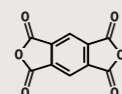
Molecular weight	142.16
CAS Nr	5394-63-8
Minimum assay	93.0 %
Minimum stability	3 months

2,4,6-Trisopropylaniline (TRIPA)



Molecular weight	219.37
CAS Nr	21524-36-7
Minimum assay	95.0 %
Minimum stability	2 years

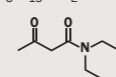
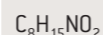
PMDA (PMDA)



Molecular weight	218.12
CAS Nr	89-32-7
Minimum assay	99.5 %
Minimum stability	18 months

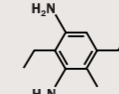
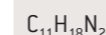
Unsaturated Polyester Resins (UPR)

N,N-Diethylacetoacetamide (DEAA)



Molecular weight	157.21
CAS Nr	2235-46-3
Minimum assay	98.0 %
Minimum stability	3 months

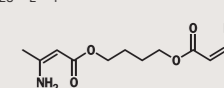
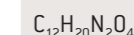
Lonzacure (DETA 80, LC, LT)



Molecular weight	178.28
CAS Nr	68479-98-1
Minimum assay	97.5 %
Minimum stability	15 months

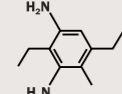
PVC

1,4-Butyleneglycolbis (3-aminocrotonate) (BGAC)



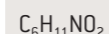
Molecular weight	256.30
CAS Nr	14205-47-1
Minimum assay	96.0 %
Minimum stability	2 years

Lonzacure (DETA 80, LC, LT)



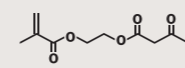
Molecular weight	178.28
CAS Nr	68479-98-1
Minimum assay	97.5 %
Minimum stability	15 months

N,N-Dimethylacetoacetamide (DMAA-80,95, 80 LC, 95 LC)



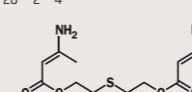
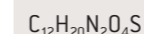
Molecular weight	129.16
CAS Nr	2044-64-6
Minimum assay	80.0 %
Minimum stability	6 months

2-(Acetoacetoxy) ethylmethacrylate (AAEMA)



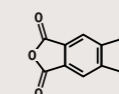
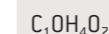
Molecular weight	214.21
CAS Nr	21282-97-3
Minimum assay	95.0 %
Minimum stability	1 year

Thiodiglycolbis (3-aminocrotonate) (TGAC)



Molecular weight	288.37
CAS Nr	13560-49-1
Minimum assay	96.0 %
Minimum stability	2 years

PMDA (PMDA)



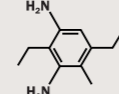
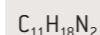
Molecular weight	218.12
CAS Nr	89-32-7
Minimum assay	99.5 %
Minimum stability	18 months

Acrylics

Epoxy Resins

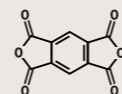
Molecular weight	
CAS Nr	
Minimum assay	
Minimum stability	

Lonzacure (DETA 80, LC, LT)



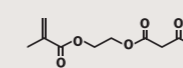
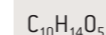
Molecular weight	178.28
CAS Nr	68479-98-1
Minimum assay	97.5 %
Minimum stability	15 months

PMDA (PMDA)



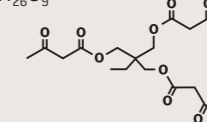
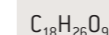
Molecular weight	218.12
CAS Nr	89-32-7
Minimum assay	99.5 %
Minimum stability	18 months

2-(Acetoacetoxy) ethylmethacrylate (AAEMA)



Molecular weight	214.21
CAS Nr	21282-97-3
Minimum assay	95.0 %
Minimum stability	1 year

Propane-1.1.1-triyltrimethyl tris (acetoacetate) (AATMP)

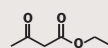


Molecular weight	386.39
CAS Nr	22208-25-9
Minimum assay	95.0 %
Minimum stability	24 months



Flavor & Fragrance

Ethyl acetoacetate (EAA)



Molecular weight	130.14
CAS Nr	141-97-9
Minimum assay	99.0%
Minimum stability	2 years

Diketene-acetone adduct (DAA)



Molecular weight	142.16
CAS Nr	5394-63-8
Minimum assay	93.0%
Minimum stability	3 months

Paraldehyde (PARA)



Molecular weight	132.16
CAS Nr	123-63-7
Minimum assay	99.5%
Minimum stability	60 days

Acetaldehyde (AcAl, KCS, CS, S)



Molecular weight	44.05
CAS Nr	75-07-0
Minimum assay	99.5%
Minimum stability	1 year

2-Methylbutyronitrile (BN, 2-Me 80)



Molecular weight	83.13
CAS Nr	18936-17-9
Minimum assay	95.0%
Minimum stability	6 months



Oil & Gas

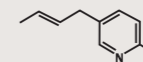
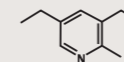
Diketene-acetone adduct (DAA)



Molecular weight	142.16
CAS Nr	5394-63-8
Minimum assay	93.0%
Minimum stability	3 months

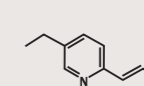
Akolidine™ 10 (Pyridine, alkyl derivatives)

All akolidines contain the following components:



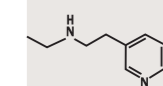
Molecular weight	-
CAS Nr	68391-11-7
Minimum assay	-
Minimum stability	2 years

Akolidine™ 11 (Pyridine, alkyl derivatives)



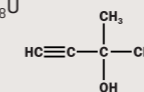
Molecular weight	-
CAS Nr	68391-11-7
Minimum assay	-
Minimum stability	2 years

Akolidine™ 12 (Pyridine, alkyl derivatives)



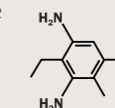
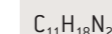
Molecular weight	-
CAS Nr	68391-11-7
Minimum assay	-
Minimum stability	2 years

Methylbutinol (MBI)



Molecular weight	84.12
CAS Nr	115-19-5
Minimum assay	99.0%
Minimum stability	2 years

Lonzacure (DETA 80, LC, LT)



Molecular weight	178.28
CAS Nr	68479-98-1
Minimum assay	97.5%
Minimum stability	15 months

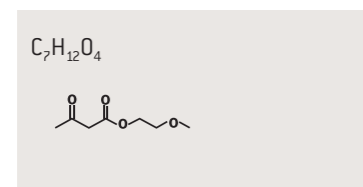


Other Markets



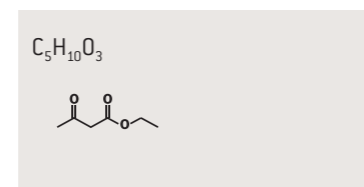
2-Methoxyethyl acetoacetate

(AAMethoxyethyl)



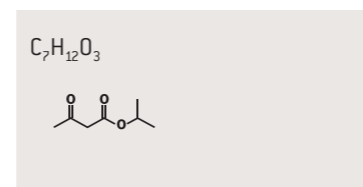
Molecular weight	160.16
CAS Nr	22502-03-0
Minimum assay	97.5%
Minimum stability	2 years

Ethyl acetoacetate (EAA)



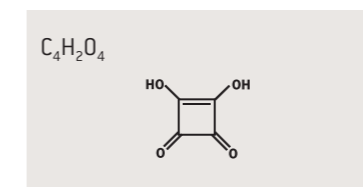
Molecular weight	130.14
CAS Nr	141-97-9
Minimum assay	99.0%
Minimum stability	2 years

Isopropyl acetoacetate (IPAA)



Molecular weight	144.17
CAS Nr	542-08-5
Minimum assay	98.5%
Minimum stability	2 years

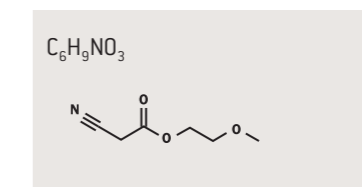
Squaric acid (QS)



Molecular weight	114.06
CAS Nr	2892-51-5
Minimum assay	98.5%
Minimum stability	2 years

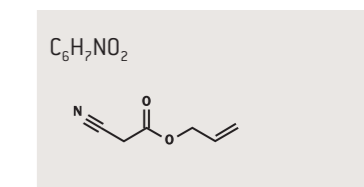
2-Methoxyethyl cyanoacetate

(CNES methoxyet)



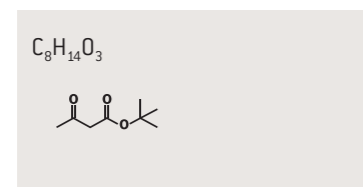
Molecular weight	143.14
CAS Nr	10258-54-5
Minimum assay	≥99.0%
Minimum stability	2 years

Allyl cyanoacetate (CNESallyl)



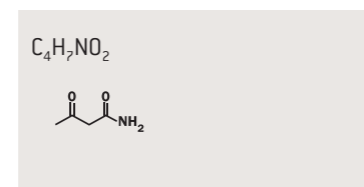
Molecular weight	125.13
CAS Nr	13361-32-5
Minimum assay	99.0%
Minimum stability	2 years

t-Butyl acetoacetate (TBAA)



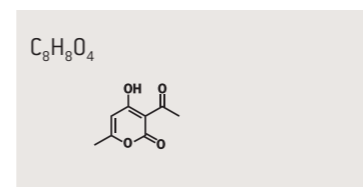
Molecular weight	158.20
CAS Nr	1694-31-1
Minimum assay	98.0%
Minimum stability	2 years

Acetoacetamide (AAmid)



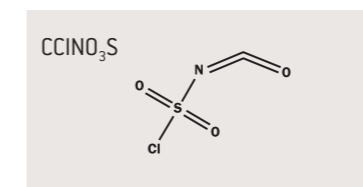
Molecular weight	101.11
CAS Nr	5977-14-0
Minimum assay	98.5%
Minimum stability	18 months

Dehydroacetic acid (DHS)



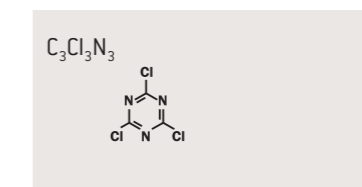
Molecular weight	168.15
CAS Nr	520-45-6
Minimum assay	99.0%
Minimum stability	2 years

Chlorosulfonyl isocyanate (CSI)



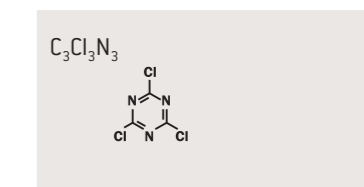
Molecular weight	141.53
CAS Nr	1189-71-5
Minimum assay	99.0–100.3%
Minimum stability	1 year

Cyanuric chloride A (CCA)



Molecular weight	184.41
CAS Nr	108-77-0
Minimum assay	99.5%
Minimum stability	6 months

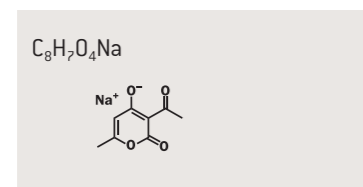
Cyanuric chloride AL (CCAL)



Molecular weight	184.41
CAS Nr	108-77-0
Minimum assay	99.50%
Minimum stability	6 months

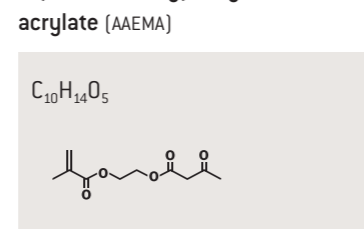
Dehydroacetic acid, sodium salt

(DHS-Na)



Molecular weight	190.13
CAS Nr	4418-26-2
Minimum assay	99.0%
Minimum stability	2 years

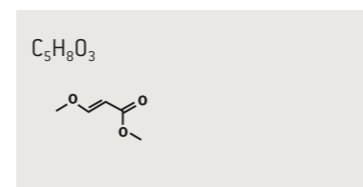
2-(Acetoacetoxy) ethylmethacrylate (AAEMA)



Molecular weight	214.21
CAS Nr	21282-97-3
Minimum assay	95.0%
Minimum stability	1 year

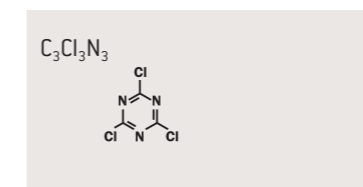
(E)-Methyl 3-methoxyacrylate

(E-MMA 98)



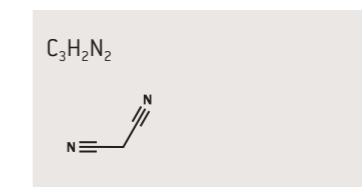
Molecular weight	116.12
CAS Nr	34846-90-7, 5788-17-0 (linear structure)
Minimum assay	≥98.0%
Minimum stability	2 years

Cyanuric chloride AS (CCAS)



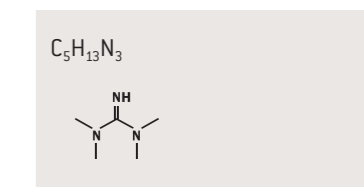
Molecular weight	184.41
CAS Nr	108-77-0
Minimum assay	99.5%
Minimum stability	6 months

Malononitrile (MDN)



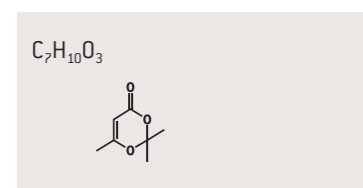
Molecular weight	66.06
CAS Nr	109-77-3
Minimum assay	99.0%
Minimum stability	18 months

1,1,3,3-Tetramethylguanidine (TMG)



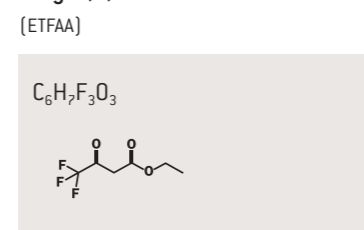
Molecular weight	115.18
CAS Nr	80-70-6
Minimum assay	99.0%
Minimum stability	1 year

Diketene-acetone adduct (DAA)



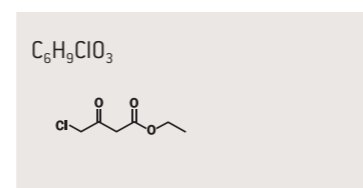
Molecular weight	142.16
CAS Nr	5394-63-8
Minimum assay	93.0%
Minimum stability	3 months

Ethyl 4,4,4-trifluoroacetoacetate (ETFAA)



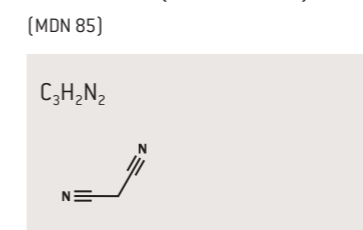
Molecular weight	184.12
CAS Nr	372-31-6
Minimum assay	97.0%
Minimum stability	6 months

Ethyl 4-chloroacetoacetate (CAAET)



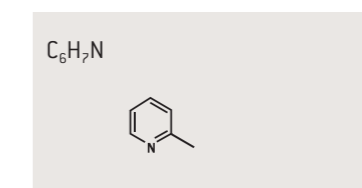
Molecular weight	164.59
CAS Nr	638-07-3
Minimum assay	97.0%
Minimum stability	1 year

Malononitrile (85% in methanol)



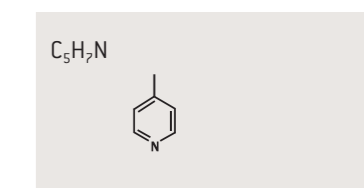
Molecular weight	66.06
CAS Nr	109-77-3
Minimum assay	99.0%
Minimum stability	18 months

2-Picoline (Picoline,2)

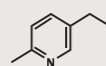


Molecular weight	93.13
CAS Nr	109-06-8
Minimum assay	99.0%
Minimum stability	2 years

4-Picoline (Picoline,4)



Molecular weight	93.13
CAS Nr	108-89-4
Minimum assay	>98.0%
Minimum stability	2 years

**5-Ethyl-2-methylpyridine (MEP)**C₈H₁₁N

Molecular weight	121.18
CAS Nr	104-90-5
Minimum assay	96 %
Minimum stability	1 year

Akolidine™ 10

(Pyridine, alkyl derivatives)

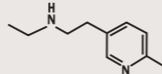
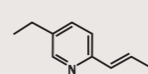
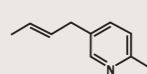
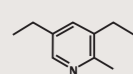
Akolidine™ 11

(Pyridine, alkyl derivatives)

Akolidine™ 12

(Pyridine, alkyl derivatives)

All akolidines contain the following components:



Molecular weight	—
CAS Nr	68391-11-7
Minimum assay	—
Minimum stability	2 years

Molecular weight	—
CAS Nr	68391-11-7
Minimum assay	—
Minimum stability	2 years

Molecular weight	—
CAS Nr	68391-11-7
Minimum assay	—
Minimum stability	2 years

Paraldehyde (PARA)C₆H₁₂O₃

Molecular weight	132.16
CAS Nr	123-63-7
Minimum assay	99.5 %
Minimum stability	60 days

Pyrimidine (<0.5 % water)

(Pyrimidine W<0.5)

C₄H₄N₂

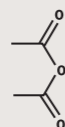
Molecular weight	80.09
CAS Nr	289-95-2
Minimum assay	98.5–100.0 %
Minimum stability	2 years

Acetaldehyde (AcAl) (KCS) (CS) (S)C₂H₄O

Molecular weight	44.05
CAS Nr	75-07-0
Minimum assay	99.5 %
Minimum stability	1 year

Acetic acid (glacial) (ES 99, 80)C₂H₄O₂

Molecular weight	60.05
CAS Nr	64-19-7
Minimum assay	80.0 %
Minimum stability	2 years

Acetic anhydride (ESanhydrid)C₄H₆O₃

Molecular weight	102.09
CAS Nr	108-24-7
Minimum assay	99.5 %
Minimum stability	2 years

Ammonia anhydrous (Ammonia comp.)NH₃

Molecular weight	17.03
CAS Nr	7664-41-7
Minimum assay	99.9 %
Minimum stability	2 years

Ammonia aqueous (Ammonia 24,5 r)

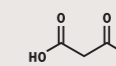
approx. 24.5–24.9 % chemically pure

NH₃

Molecular weight	17.03
CAS Nr	1336-21-6
Minimum assay	24.5–24.9 %
Minimum stability	2 years

Ammonia aqueous 25 % (Ammonia 25)NH₃

Molecular weight	17.03
CAS Nr	1336-21-6
Minimum assay	25.0 %
Minimum stability	2 years

Malonic acid (MA)C₃H₄O₄

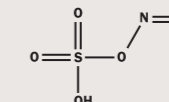
Molecular weight	104.06
CAS Nr	141-82-2
Minimum assay	99 %
Minimum stability	1 year

Nitric acid 60%, 65 %, 68.5 % & conc.HNO₃

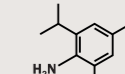
Molecular weight	63.01
CAS Nr	7697-37-2
Minimum assay	60.0 %
Minimum stability	1 year

Nitrosylsulfuric acid 40 %

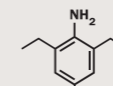
(NOS 40)

HNO₅S

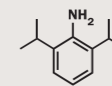
Molecular weight	127.08
CAS Nr	7782-78-7
Minimum assay	39.5–40.5 %
Minimum stability	2 years

2,4,6-Trisopropylaniline (TRIPA)C₁₅H₂₅N

Molecular weight	219.37
CAS Nr	21524-36-7
Minimum assay	95.0 %
Minimum stability	2 years

2,6-Diethyl-4-methylaniline (DEMA)C₁₁H₁₇N

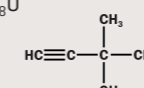
Molecular weight	163.26
CAS Nr	24544-08-9
Minimum assay	>98.0 %
Minimum stability	1 year

2,6-Diisopropylaniline (DIPA, DIPA HQ)C₁₂H₁₉N

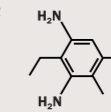
Molecular weight	177.29
CAS Nr	24544-04-5
Minimum assay	92.0 %
Minimum stability	1 year

2-Methylbutyronitrile (BN,2-Me 80)C₅H₉N

Molecular weight	83.13
CAS Nr	18936-17-9
Minimum assay	95.0 %
Minimum stability	6 months

Methylbutinol (MBI)C₅H₈O

Molecular weight	84.12
CAS Nr	115-19-5
Minimum assay	99.0 %
Minimum stability	2 years

Lonzacure (DETDA 80, LC, LT)C₁₁H₁₈N₂

Molecular weight	178.28
CAS Nr	68479-98-1
Minimum assay	97.5 %
Minimum stability	15 months



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