

WACKER

CREATING TOMORROW'S SOLUTIONS

EDITION 2022

LIFE SCIENCE CHEMICALS FOR PHARMA, AGRO AND INDUSTRIAL APPLICATIONS

WACKER: PROVIDING SOLUTIONS FOR YOUR INDUSTRY SINCE 1914

In the pharmaceutical and agrochemical industries, innovative solutions are as important as reliable production processes for the manufacture of high-quality products.

Based on 100 years of expertise, WACKER offers fine chemicals for synthesis and biotechnologically derived products for the formulation of actives – we are both your global supplier and individual solution provider.

Contents

WACKER as Your Partner	3
Our Offering	5
Our Production System	8
Our Product Portfolio	10
Product Overview	12
Product Details	
Cyclodextrins	15
Chlorinated Intermediates	17
Organic Esters	20
Diketones	21
Silylating Agents	22
Silyl Building Blocks	24
Heterocycles	25
Other Fine Chemicals	26
Ketene Acetals	27
WACKER at a Glance	28

EXPERTISE MEETS TECHNOLOGY

Whether you are looking for established products or innovative solutions – we support your success with a broad product portfolio, extensive expertise and state-of-the-art production.

100 Years of Expertise

In 2014, WACKER celebrated its centennial, recalling its origin as a producer of acetic acid, which is still a key raw material for many of our products. We have since grown to be a leading global chemical corporation that has served the pharmaceutical and agrochemical industries with dedication and expertise for decades.

Proprietary Technologies

WACKER is one of the most research-intensive chemical companies in the world. We currently hold over 3,600 patents with over 1,200 pending. We are the only global producer of alpha-, beta- and gamma-cyclodextrins.

WACKER is one of the world's leading chemical companies with 26 production sites and around 14,400 employees across the globe. Most of our products for pharmaceutical and agricultural applications are made at our Burghausen site, which covers 232 hectares and employs around 8,000 people. We manufacture more than 3,000 different products in a highly integrated production system ("Verbundsystem") at the site.





FUTURE-BOUND – FROM PRODUCTION TO SUSTAINABILITY

Highly Sophisticated Production Processes

Many of our patents concern our production processes. In a highly integrated production system (“Verbundsystem”), we use custom chemical processes to guarantee seamless control, from the raw materials to the end product. Our strong backward integration ensures supply security.

Comprehensive Service

As a solution provider, we assist you along your value chain. From large-scale supply to quality-assurance support – we strive to meet your specific demands.

Committed to Sustainability

We are utterly committed to the principles of sustainable development and Responsible Care®, as well as to national and international standards. Our integrated management system (IMS) forms the basis for this.

Your Advantages:

- *Broad product range of cyclodextrins and derivatives*
- *Broad portfolio of organic intermediates and organosilanes*
- *Longstanding experience in core technologies*
- *Broad expertise in developing tailor-made solutions*
- *Excellent customer service*
- *Large production capacities*
- *High backward integration*



*OUR OFFERING:
A HIGH-QUALITY COMBINATION
OF EXPERIENCE AND INNOVATION*

Throughout our portfolio, from cyclodextrins to complex organic intermediates, you will find a common basis – top quality standards for your specific needs. With our products and services, we focus on the pharmaceutical and agrochemical industries. However, some of our large-volume products also find use as building blocks and solvents in industrial applications.

DEDICATED TO SPECIAL INDUSTRIES



Pharma



Agro



Flavor & Fragrance



Industrial

Product Group

- Fine chemicals
- Silanes
- Cyclodextrins*

- Fine chemicals
- Cyclodextrins**

- Fine chemicals

- Fine chemicals
- Acetylacetone
- Methyl acetate
- Cyclodextrins**
- Specialty monomers

Application

- Synthesis: building blocks, reagents, solvents
- Fermentation: auxiliaries
- Purification: agents
- Formulation: excipients

- Synthesis: building blocks
- Formulation: adjuvants

- Synthesis: building blocks

- Synthesis: building blocks, solvents
- Performance chemicals

Quality Standard

- ISO 9001/14001/50001
- “Pharma” cyclodextrin derivatives comply with IPEC GMP
- “Pharma” native cyclodextrins comply with EXCiPACT GMP
- Ph. Eur./USP***

- ISO 9001/14001/50001

- ISO 9001/14001/50001
- Halal/kosher for selected products

- ISO 9001/14001/50001
- RSPO certified suppliers

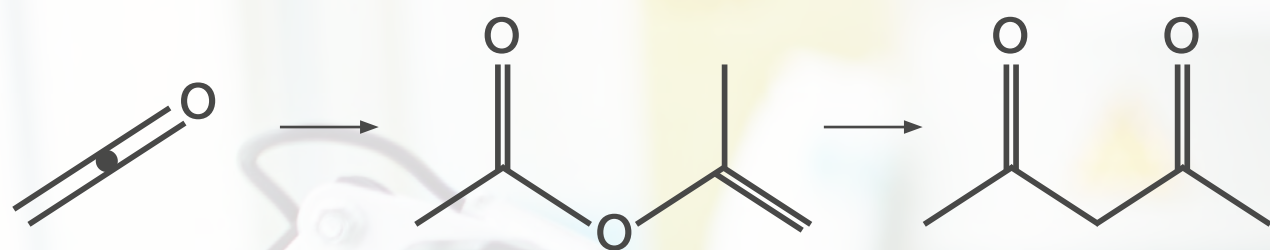
* Distributed under the tradenames CAVAMAX® and CAVASOL®

** Distributed through the Business Unit BioIngredients

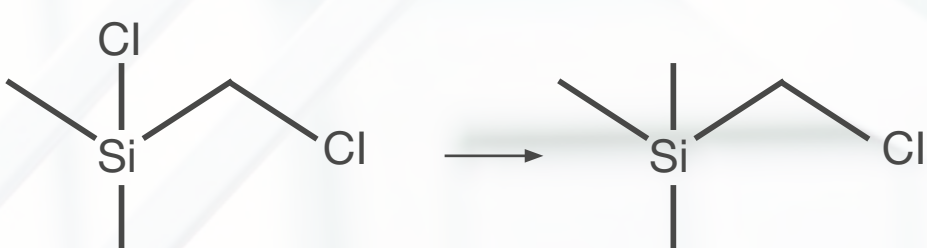
*** Certain products fulfill Ph.Eur./USP monograph specification requirements

Custom Synthesis Based on Our Key Raw Materials and Core Technologies

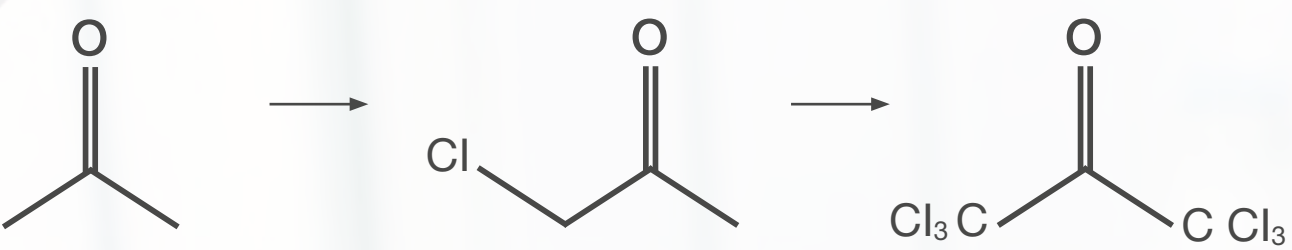
Ketene chemistry



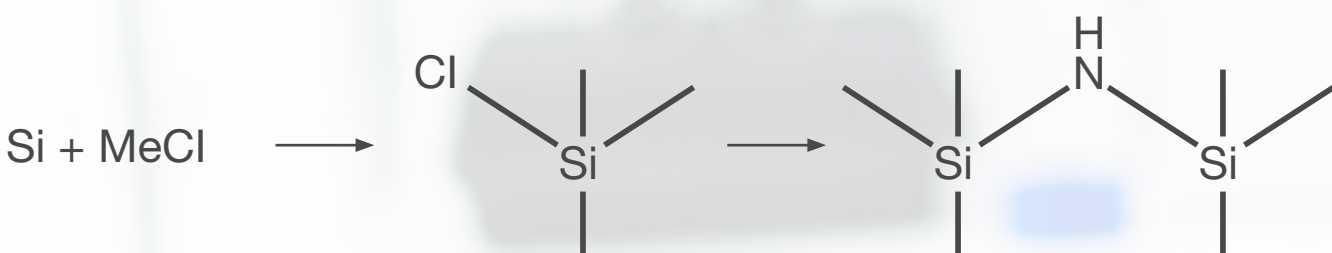
Organometallic chemistry



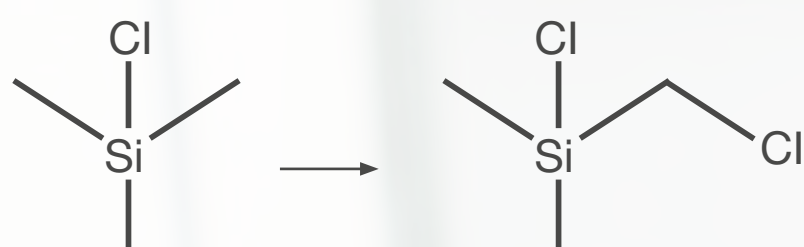
α -chlorination



Silane chemistry



Photochlorination



With our core technologies, we can provide large-volume, single-step custom synthesis of products, such as α -chlorinated ketones. In addition, we offer all the advantages of a global player as well as extensive, individualized service.

Your Benefits:

- Customized services thanks to our own process development laboratory
- High flexibility due to large-scale production capacities on a scale of 10 – 1,000 MT
- Cost-efficient processes, e.g. due to continuous production
- Supply security due to backward integration and our flexible multipurpose plant
- Safe handling of toxic and highly flammable products thanks to corrosion-resistant and explosion-proof equipment
- Safe transportation thanks to a fleet of dedicated tank containers for bulk deliveries

OUR PRODUCTION SYSTEM: ENSURING HIGH QUALITY AND SUPPLY SECURITY

At our multipurpose plant in Burghausen, we operate a unique, highly integrated production system (“Verbundsystem”), which we constantly refine to meet the most stringent of quality standards. With these refinements, we also aim to continually reduce material and energy consumption.



Backward Integrated to Our Own Salt Mine ...

We extract the raw material, salt, at our own salt mine in Stetten, Germany. The key reagents, chlorine and sodium hydroxide, are produced at our facility in Burghausen. Chlorine is used in our chlorination reactions to yield chloroacetones (MCA, TCA and HCA), chloroacetaldehyde and its derivatives (CLACH, CADMA, CADEA, etc.) and chloromethylsilanes (CMM1, CMM2, and CMM3). Vinyl acetate, which is produced from acetic acid and ethylene, is another key raw material in the synthesis of CLACH and CADMA.

... and Silicon-Metal Production Plant

Methyl chloride (MeCl) and methylchlorosilanes (Me_nSiCl_m) are produced from chlorine, methanol and silicon metal (Müller-Rochow process). We are backward integrated to silicon metal through our own production plant in Norway.

Production in a Closed Pipeline System

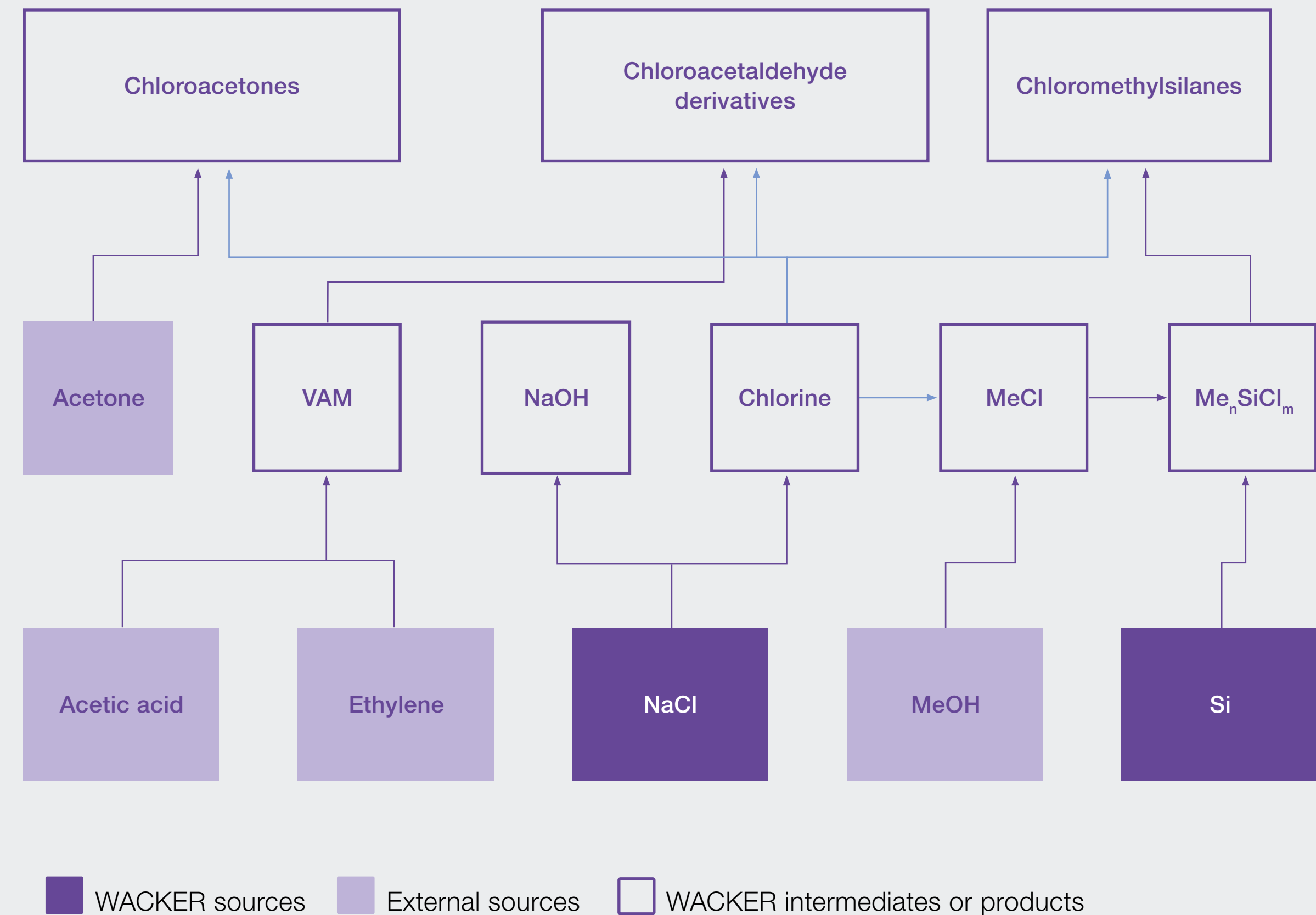
Our “Verbundsystem” (integrated production system) is a highly backward-integrated, vertical system. You can benefit from our infrastructure that handles, for example, highly corrosive reagents in a closed pipeline system. Gases and side streams that are generated during the reactions are mostly separated, purified and recycled/fed into the larger integrated “Verbund” production system at our Burghausen site.

Focus on Sustainability

This leads to a highly efficient, safe and sustainable production system. In this context, our original goal was to reduce weighted specific energy consumption by one-third between 2007 and 2022, but we had already achieved that by 2014. We have now set a goal of reducing specific energy consumption to half of the 2007 level by the year 2030.

For a list of abbreviations, please refer to [pages 12 to 14](#).

Our Multipurpose Plant (ZPA*) Benefits from WACKER's Integrated Production System (“Verbundsystem“)



*ZPA (“Zwischenproduktanlage”) = WACKER's multipurpose plant for organic intermediates

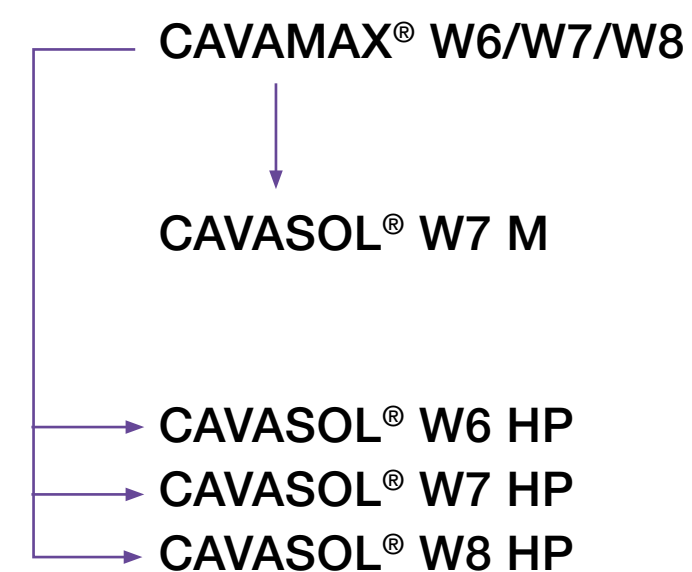
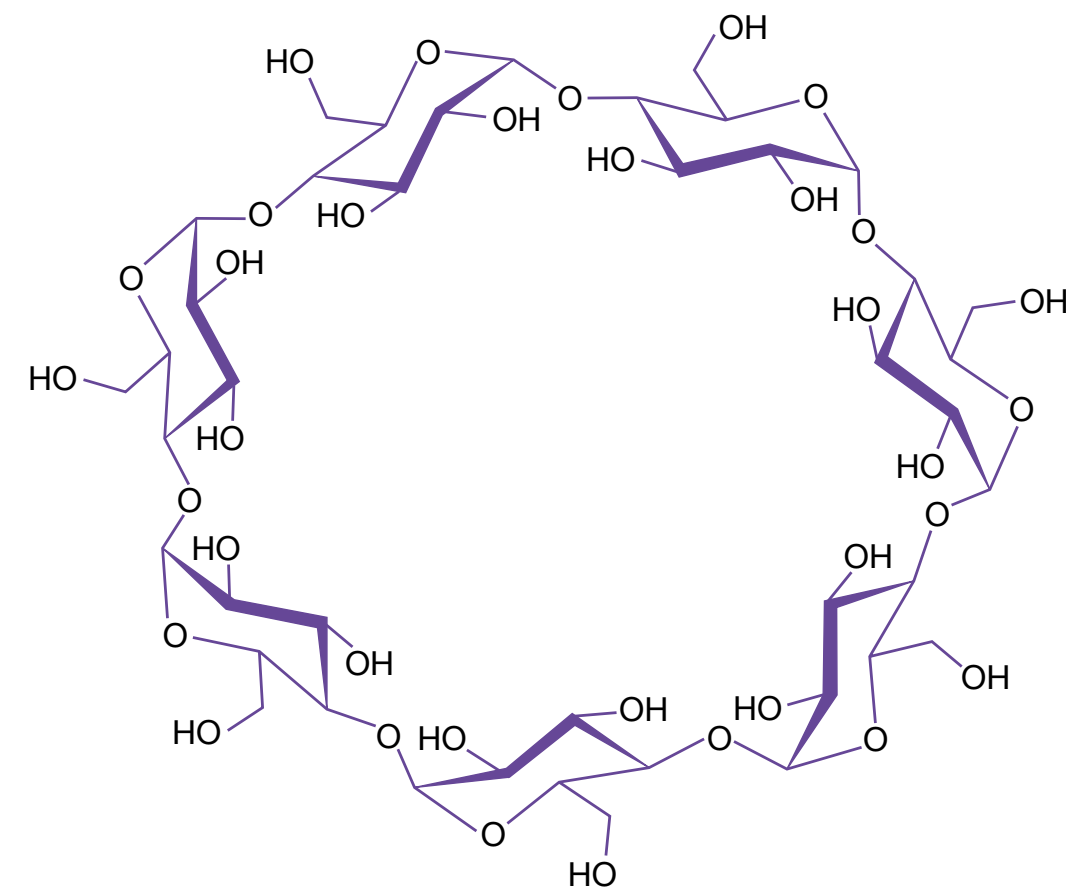
OUR PRODUCTS ARE BASED ON FIVE KEY RAW MATERIALS

Starch

Products Derived from Starch: Cyclodextrins

Cyclodextrins are naturally occurring cyclic oligosaccharides. Depending on the number of glucose units, they are described as alpha- (6 units), beta- (7 units) and gamma- (8 units) cyclodextrins.

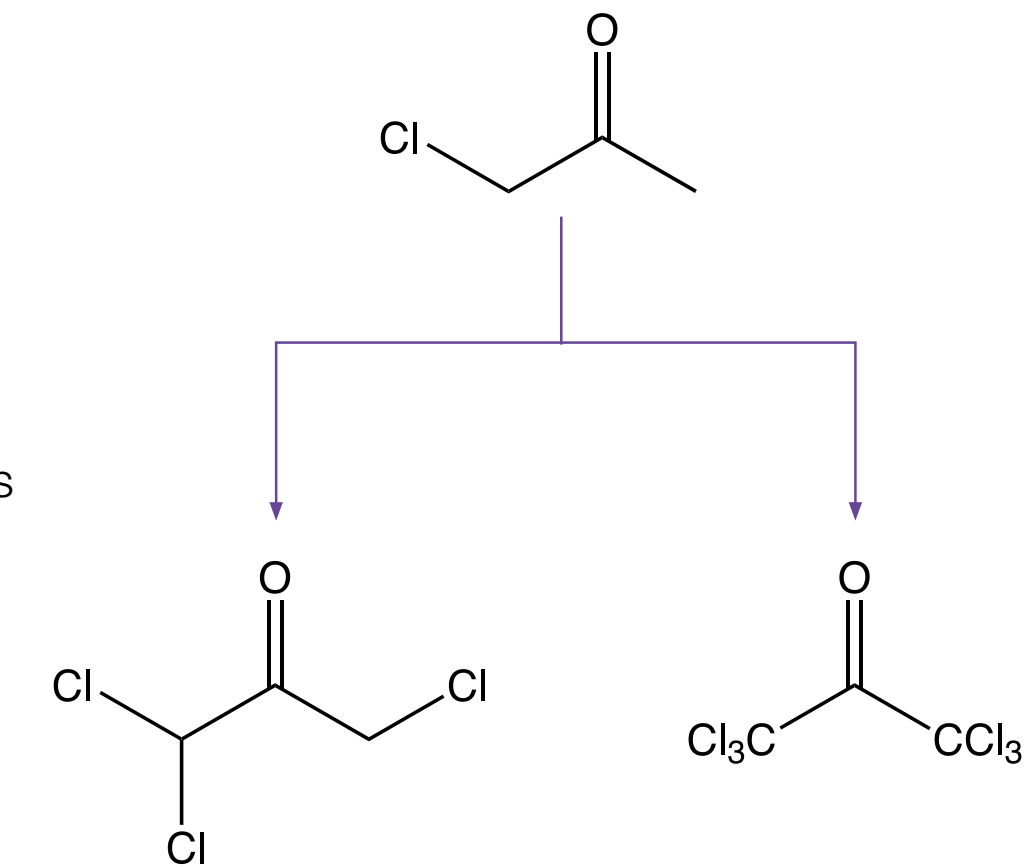
Cyclodextrins are superior solubility enhancers for active ingredients which can increase bioavailability and control the release of volatile substances. They can be used as process aid in fermentations and as solubilizer for cell culture media, too. WACKER is the only global producer of all three native cyclodextrins, which are marketed as CAVAMAX® products. We also offer chemically modified derivatives under the CAVASOL® trademark. All our native cyclodextrins are produced from starch at our Eddyville plant in Iowa, USA.



Acetone

Products Derived from Acetone: Chlorinated Intermediates

Acetone was a major pillar of WACKER's portfolio in the first half of the 20th century. This tradition is resumed in our acetone-derived products. Our chlorinated acetones are broadly used in the pharmaceutical and agrochemical industries as C-3 building blocks for the synthesis of active ingredients.



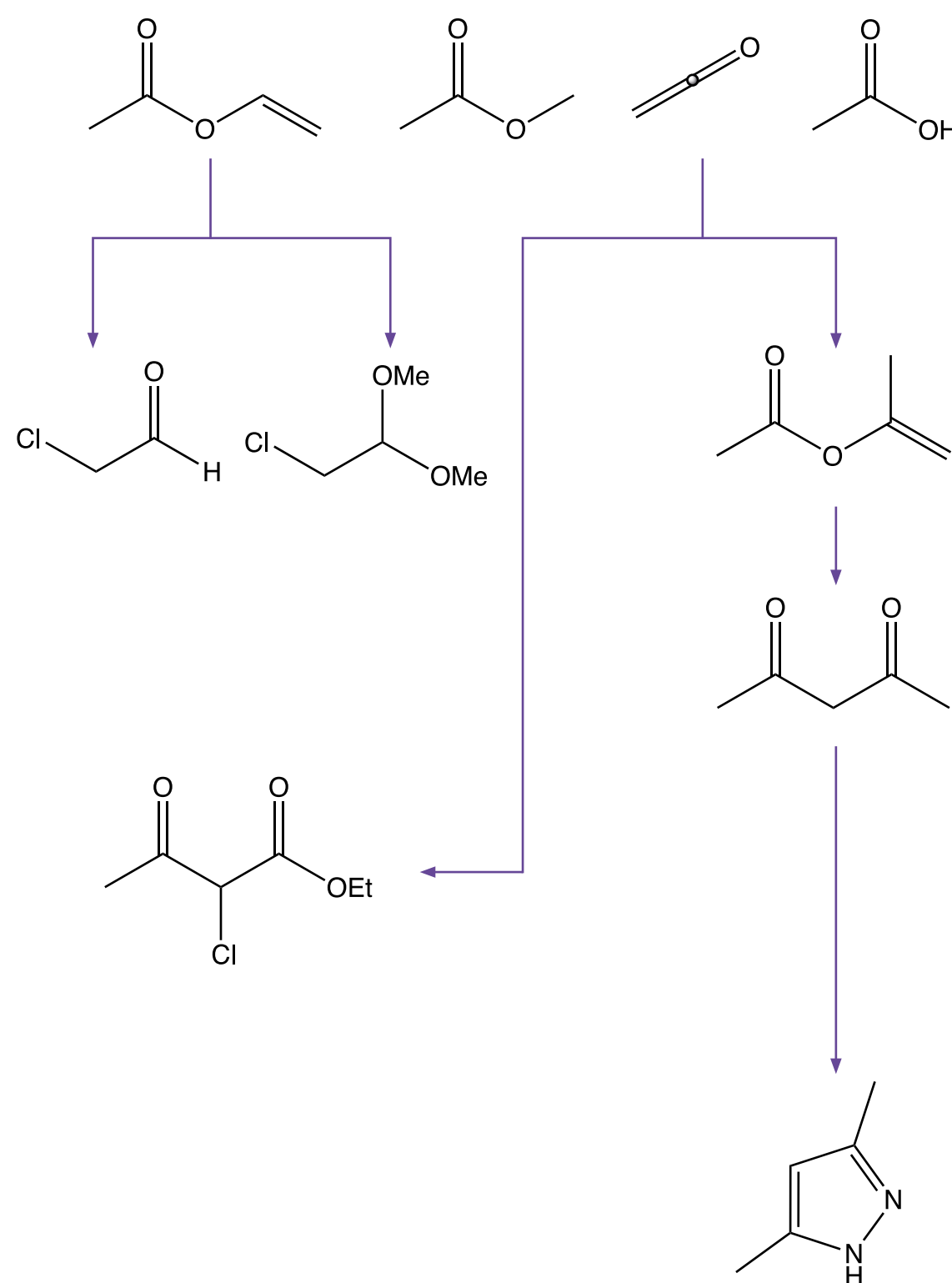
Products Derived from Acetic Acid: Organic Acids, Esters and Diketones

WACKER's success was built on the production of acetic acid at the beginning of the 20th century. This legacy lives on in the products that are based on acetic acid. Our methyl acetate is used as solvent in the pharmaceutical, coatings and detergent industries.

Chloroacetaldehyde and its acetal derivatives are highly functionalized C-2 building blocks for organic synthesis and find use in the pharmaceutical and agrochemical industries.

Our ketene-derived products serve as building blocks in the synthesis of active ingredients and we are proud to be the only remaining Western producer of acetylacetone. Our acetylacetone is used in PVC stabilizers and as raw material in the synthesis of organic intermediates for the pharmaceutical and agrochemical industries.

3,5-DMP is a common blocking agent for isocyanate polymerization.



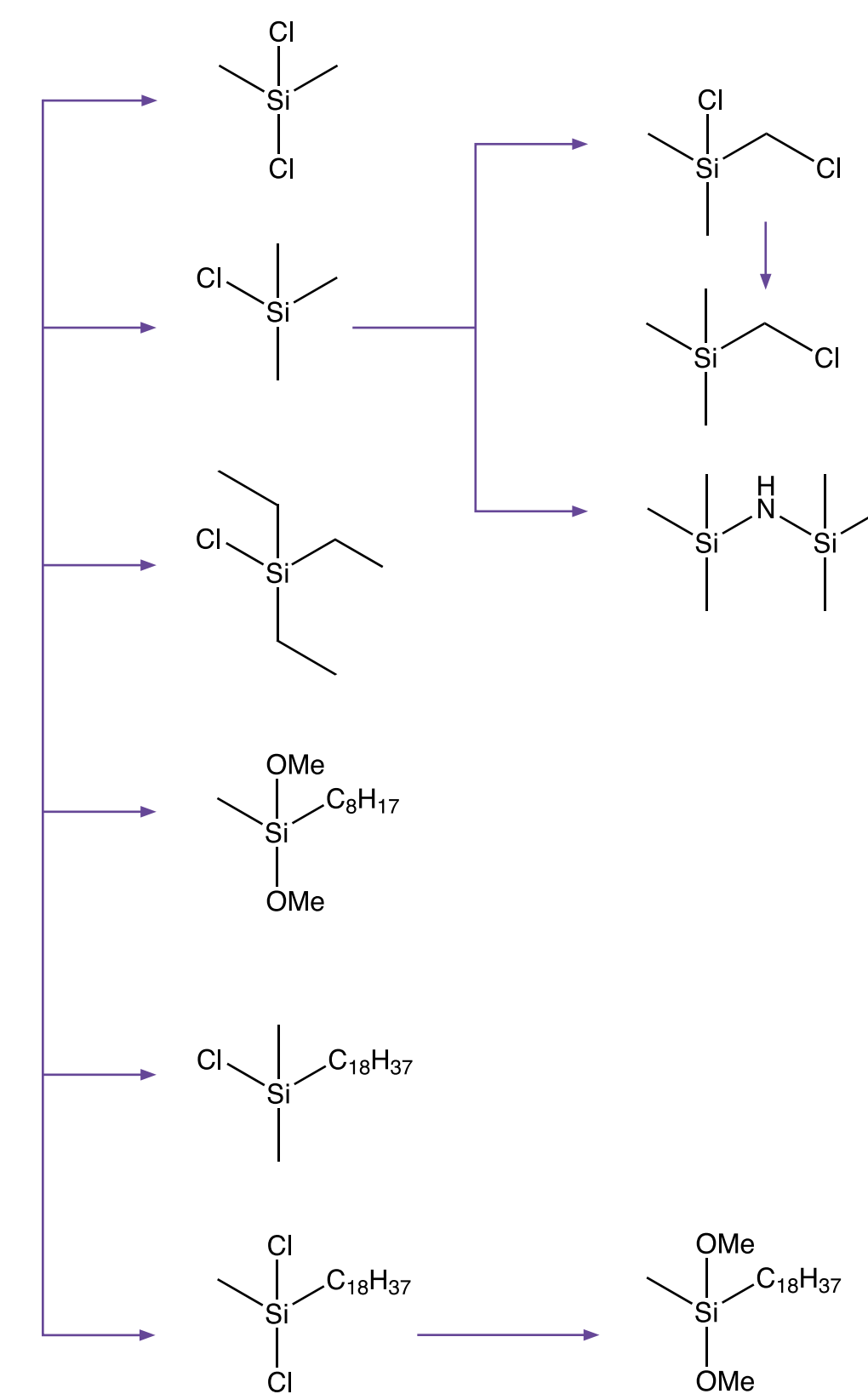
Products Derived from Silicon and Methanol: Silyl Building Blocks and Silylating Agents

WACKER is an important producer of organosilanes.







































Our chlorosilanes find use as silylating agents, predominantly in carbohydrate and beta-lactam chemistry.
















































Our C-8 or C-18 chlorosilanes are used for the production of reversed-phase chromatographic material.

Our chloromethylsilanes serve as building blocks in the synthesis of active ingredients for the pharmaceutical and agrochemical industries.



PRODUCT OVERVIEW

Product Name	WACKER Name	CAS #	Min. Assay [%]	Availability	Industries
Cyclodextrins					
α -Cyclodextrin	CAVAMAX® W6	10016-20-3	90.0	•	 
α -Cyclodextrin	CAVAMAX® W6 Pharma	10016-20-3	98.0	•	
β -Cyclodextrin	CAVAMAX® W7	7585-39-9	95.0	•	 
β -Cyclodextrin	CAVAMAX® W7 Pharma	7585-39-9	98.0	•	
γ -Cyclodextrin	CAVAMAX® W8	17465-86-0	90.0	•	 
γ -Cyclodextrin	CAVAMAX® W8 Pharma	17465-86-0	98.0	•	
Methyl- β -cyclodextrin	CAVASOL® W7 M	128446-36-6	95.0	•	 
Methyl- β -cyclodextrin, techn. solution	CAVASOL® W7 M TL	128446-36-6	50.0	•	  
Methyl- β -cyclodextrin	CAVASOL® W7 M Life Science	128446-36-6	98.0	•	
Hydroxypropyl- α -cyclodextrin	CAVASOL® W6 HP TL	128446-33-3	50.0	•	 
Hydroxypropyl- β -cyclodextrin	CAVASOL® W7 HP	128446-35-5	95.0	•	 
Hydroxypropyl- β -cyclodextrin	CAVASOL® W7 HP TL	128446-35-5	40.0	•	 
Hydroxypropyl- β -cyclodextrin	CAVASOL® W7 HP Pharma	128446-35-5	98.0	•	
Hydroxypropyl- γ -cyclodextrin	CAVASOL® W8 HP Pharma	128446-34-4	98.0	•	
Organic Esters					
Methyl acetate 97%	MetAc	79-20-9	97.0	•	 
Methyl acetate 99.5%	MetAc	79-20-9	99.5	•	 
Isopropenyl acetate	IPA	108-22-5	99.0	•	   
Vinyl Laurate	VERSA® 12	2146-71-6	98.0	•	
Diketones					
Acetylacetone	AcAc	123-54-6	99.5	•	  
Acetylacetone	ACAN	110-13-4		•	  

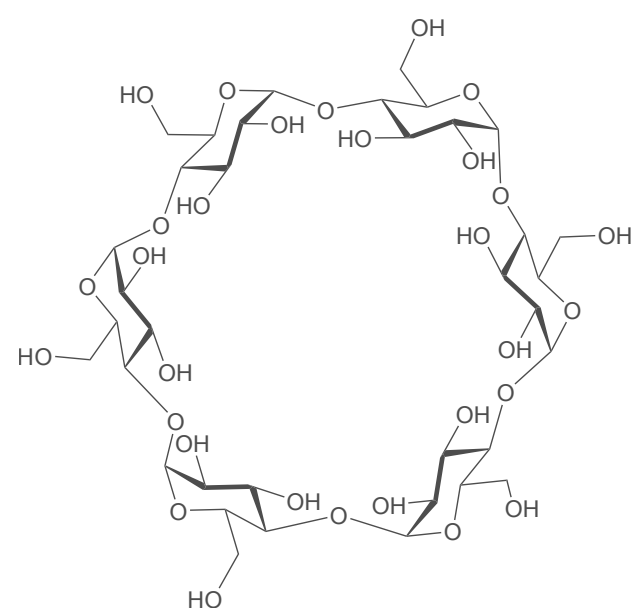
Product Name	WACKER Name	CAS #	Min. Assay [%]	Availability	Industries
Chlorinated Intermediates					
Monochloroacetone	MCA	78-95-5	96.0	•	   
1,1,1-Trichloroacetone	1,1,1-TCA	918-00-3	95.0	Upon request	
1,1,3-Trichloroacetone	1,1,3-TCA	921-03-9	86.5	•	 
1,1-Dichloroacetone	1,1-DCA	513-88-2	96.0	Upon request	 
Hexachloroacetone	HCA	116-16-5	99.2	•	  
Hexachloroacetone, high purity	HCA h.p.	116-16-5	99.8	•	 
Chloroacetaldehyde, 45% solution	CLACH	107-20-0	45.0	•	   
Chloroacetaldehyde dimethylacetal	CADMA	97-97-2	99.0	•	  
Chloroacetaldehyde diethylacetal	CADEA	621-62-5	98.0	Upon request	 
2-(Chloromethyl)-1,3-dioxepane	CMDO	54237-96-6		Upon request	  
Ethyl-2-chloroacetoacetate	2-CI-ACE	609-15-4	96.0	Upon request	 
3-Chloro-2-butanone	3-CI-MEK	4091-39-8	96.0	•	   
Silyl Building Blocks					
Dichloro(chloromethyl)methylsilane	Silane CMM1	1558-33-4	99.0	•	 
Chloro(chloromethyl)dimethylsilane	Silane CMM2	1719-57-9	99.0	•	 
(Chloromethyl)trimethylsilane	Silane CMM3	2344-80-1	98.0	•	  
Silylating Agents					
Dimethyldichlorosilane	Silane M2	75-78-5	99.0	Upon request	
Trimethylchlorosilane	Silane M3, TMSCl	75-77-4	99.0	Upon request	
Triethylchlorosilane	Silane E3, TESCl	994-30-9	99.0	•	
1,1,1,3,3,3-Hexamethyldisilazane	Silazane HMDS	999-97-3	97.0	Upon request	
Octylmethyldimethoxysilane	Silane OM-DMO	85712-15-8	96.0	•	
Octadecylmethyldichlorosilane	Silane ODM	5157-75-5	85.0	•	
Octadecyldimethylchlorosilane, 70% in toluene	Silane ODM2 in toluene	18643-08-8	59.0	•	
Octadecylmethyldimethoxysilane	Silane ODM-DMO	70851-50-2	85.0	•	

Product Name	WACKER Name	CAS #	Min. Assay [%]	Availability	Industries
Heterocycles					
2,5-Dimethylpyrrole	2,5-DMP	625-84-3	99.5	Upon request	Pharma, Agro, Industrial
3,5-Dimethylpyrazole	3,5-DMP	67-51-6	99.0	•	Pharma, Agro, Industrial
3,5-Dimethylisoxazole	Dimexazole	300-87-8	98.0	Upon request	Pharma, Agro, Industrial
Other Fine Chemicals					
2-(1,3-Benzothiazol-2-ylsulfanyl)- succinic acid	BTTBS	95154-01-1	96.0	Upon request	Industrial
Methylaminoacetaldehyde dimethylacetal	MADMA	122-07-6	99.5	Upon request	Pharma, Agro, Industrial
Ketene Acetals					
2-Methylene-1,3-dioxolane		4362-23-6		Upon request	Pharma, Industrial
2-Methylene-1,3-dioxepane	MDO	69814-56-8	98.0	Upon request	Pharma, Industrial

 Pharma
  Agro
  Flavor and Fragrance
  Industrial



PRODUCT DETAILS: CYCLODEXTRINS



CAVAMAX® W6 (α-Cyclodextrin)

Industries   

Product Information

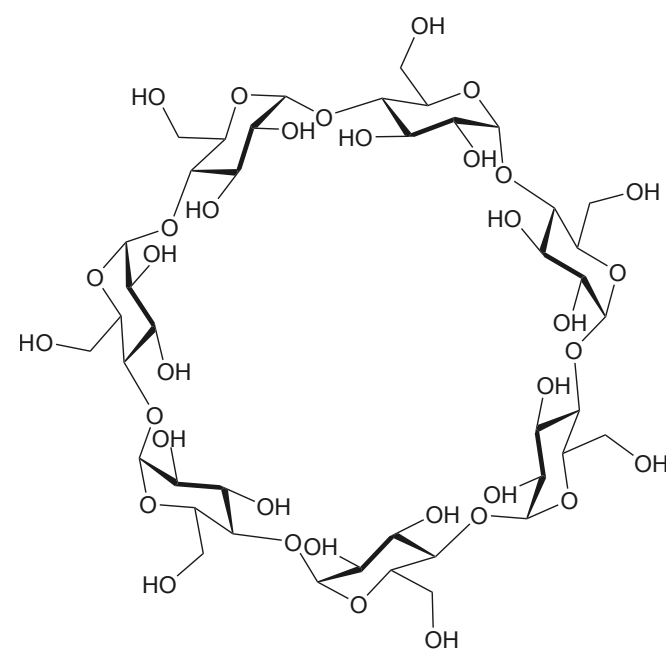
- CAS No. 10016-20-3
- White powder
- Technical grade: content min. 90.0%
- Pharmaceutical grade: content min. 98.0%, complies with current Ph.Eur. and USP/NF monographs specifications

Production

- Campaign production
- REACH: full registration
- Sole manufacturer globally

Application

- Solubilization, stabilization and delivery of small active ingredients, e.g. fatty acids
- Enhancement of both oral bioavailability and taste masking of pharmaceutical and agrochemical active ingredients; enabling of delayed release of volatile materials



CAVAMAX® W7 (β-Cyclodextrin)

Industries   

Product Information

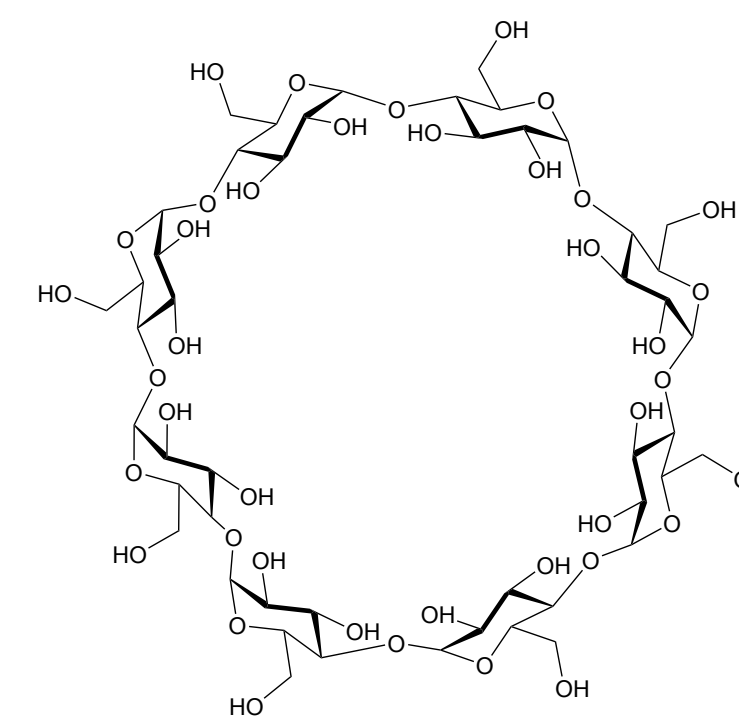
- CAS No. 7585-39-9
- White powder
- Technical grade: content min. 95.0%
- Pharmaceutical grade: content min. 98.0%, complies with current Ph.Eur. and USP/NF monographs specifications

Production

- Campaign production
- REACH: full registration
- Only Western manufacturer

Application

- Solubilization, stabilization, delivery and isolation of mid-sized active ingredients, e.g. menthol, thymol, macrolides
- Enhancement of both oral bioavailability and taste masking of pharmaceutical and agrochemical active ingredients; enabling of delayed release of volatile materials



CAVAMAX® W8 (γ-Cyclodextrin)

Industries   

Product Information

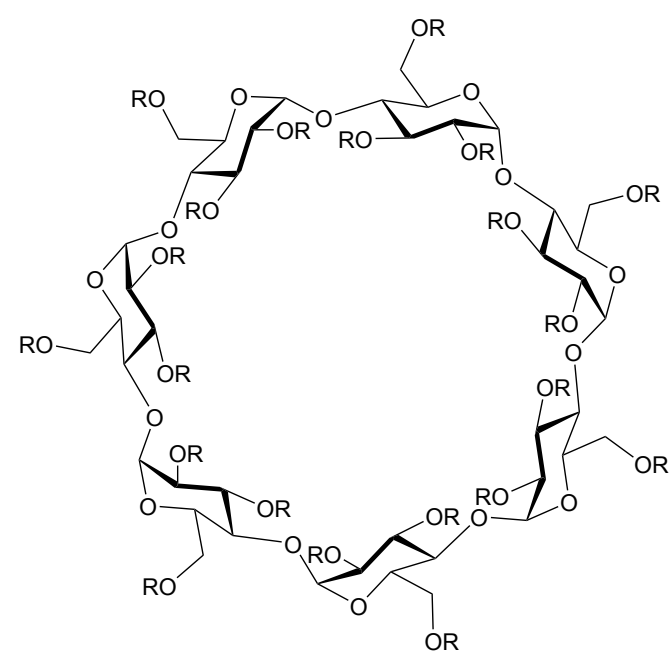
- CAS No. 17465-86-0
- White powder
- Technical grade: content min. 90.0%
- Pharmaceutical grade: content min. 98.0%, complies with current USP/NF monographs specifications

Production


- Campaign production
- REACH: full registration
- Sole manufacturer globally

Application

- Solubilization, stabilization and delivery of large active ingredients, e.g. steroids, lipids
- Enhancement of both oral bioavailability and taste masking of pharmaceutical and agrochemical active ingredients; enabling of delayed release of volatile materials



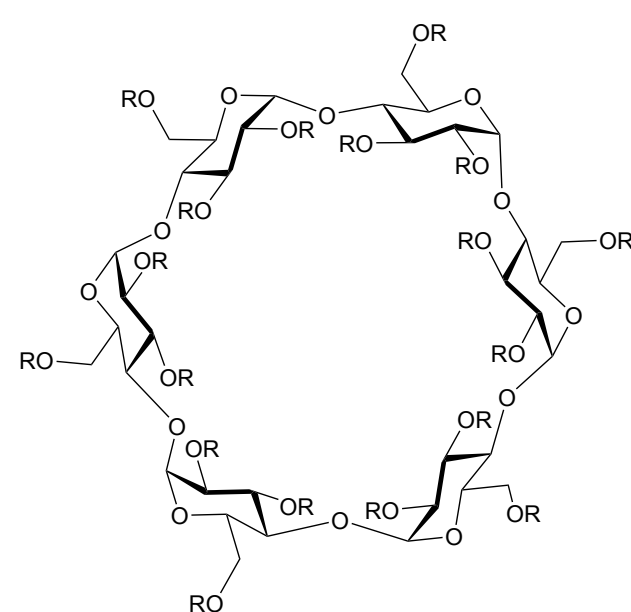
**CAVASOL® W7 M,
CAVASOL® W7 M TL
(Methyl-β-Cyclodextrin)**

Industries   

- Product Information**
- CAS No. 128446-36-6
 - Technical solution: 50% in water
 - Technical grade: powder, content min. 95.0%
 - Life science grade: powder, content min. 98.0%

- Production**
- Campaign production
 - REACH: full registration

- Application**
- Highly efficient solubilization agent
 - Solubilization, stabilization and delivery of mid-sized active ingredients, e.g. menthol, thymol, macrolides
 - Enhancement of bioavailability of agrochemical active ingredients; enabling of delayed release of volatile materials



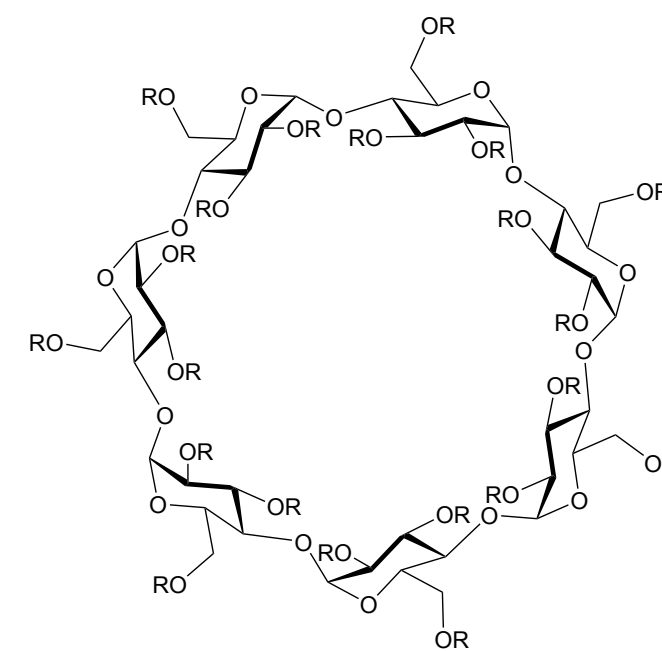
**CAVASOL® W6 HP TL
(Hydroxypropyl-α-Cyclodextrin)**

Industries  

- Product Information**
- CAS No. 128446-33-3
 - Technical solution: content 50% in water, (pH = 12)

- Production**
- Campaign production
 - REACH: full registration

- Application**
- Highly efficient solubilization agent
 - Solubilization, stabilization and delivery of mid-sized active or actives with aliphatic chains, for example pheromones
 - Enhancement of bioavailability of agrochemical active ingredients; enabling of delayed release of volatile materials



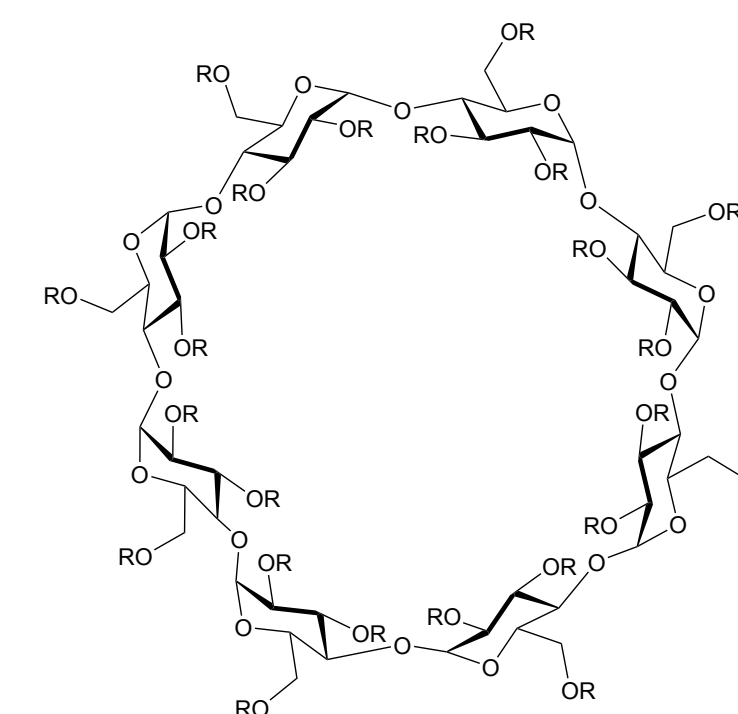
**CAVASOL® W7 HP,
CAVASOL® W7 HP TL
(Hydroxypropyl-β-Cyclodextrin)**

Industries   

- Product Information**
- CAS No. 128446-35-5
 - White powder
 - Technical solution: 40% in water (pH = 12)
 - Technical grade: powder, content min. 95.0%
 - Pharmaceutical grade: powder, content min. 98.0%**

- Production**
- Campaign production
 - REACH: full registration*

- Application**
- Highly efficient solubilization agent
 - Solubilization, stabilization and delivery of mid-sized active ingredients, e.g. menthol, thymol, macrolides
 - Enhancement of bioavailability of agrochemical active ingredients; enabling of delayed release of volatile materials



**CAVASOL® W8 HP
(Hydroxypropyl-γ-Cyclodextrin)**

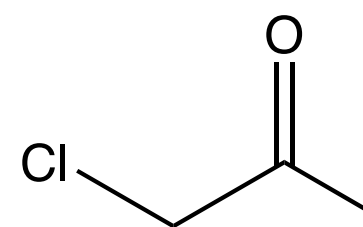
Industries   

- Product Information**
- CAS No. 128446-34-4
 - White powder
 - Pharmaceutical grade: powder, content min. 98%

- Production**
- Campaign production
 - Sole manufacturer globally

- Application**
- Highly efficient solubilization agent
 - Solubilization, stabilization and delivery of large active ingredients, e.g. steroids, lipids
 - Enhancement of bioavailability of agrochemical active ingredients; enabling of delayed release of volatile materials

PRODUCT DETAILS: CHLORINATED INTERMEDIATES



Monochloroacetone (MCA)

Industries    

Product Information

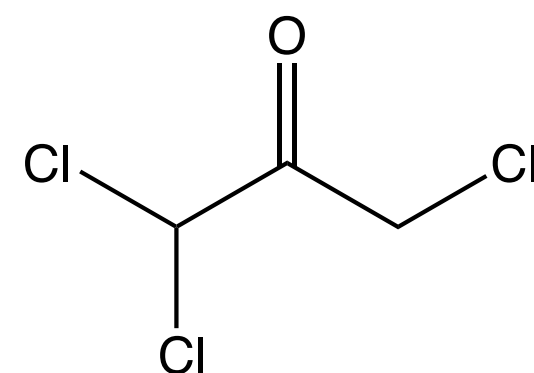
- CAS No. 78-95-5
- Clear, dark-colored, lachrymatory liquid with a pungent odor
- Content min. 96.0%
- Stabilized with 0.1% Drapex 39 (epoxidized soy bean oil)

Production

- One of the largest producers worldwide
- Efficient utilization of side streams
- Scale > 500 MT
- Lead time: campaign production, usually ton quantities in stock
- Storage stability of at least 12 months
- REACH: SCC*

Application

- API synthesis
- Building block for dyes and agrochemical substances/actives



1,1,3-Trichloroacetone (1,1,3-TCA)

Industries  

Product Information

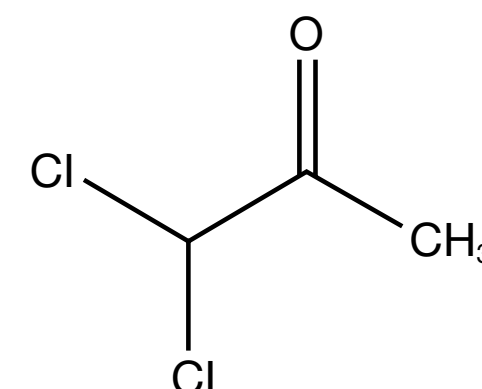
- CAS No. 921-03-9
- Colorless to reddish, lachrymatory liquid with a pungent odor
- Content min. 86.5%

Production

- One of the largest producers worldwide
- Efficient utilization of side streams
- Scale > 500 MT
- Lead time: campaign production, usually ton quantities in stock
- Storage stability of at least 12 months
- REACH: SCC*

Application

- API synthesis, e.g. vitamins
- Building block for agrochemical substances/actives



1,1-Dichloroacetone (1,1-DCA)

Industries  

Product Information

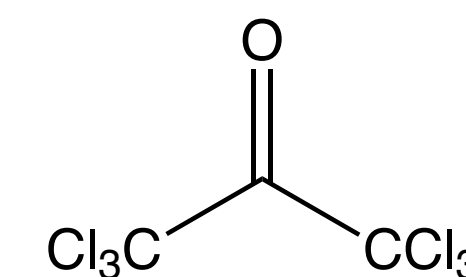
- CAS: 513-88-2
- Content min. 96.0%

Production

- One of the largest producers worldwide
- Efficient utilization of side streams
- Lead time: upon request
- Scale: pilot quantities
- Storage stability: min. 6 months
- REACH: SCC*

Application

- API synthesis, e.g. vitamins
- Building block for agrochemical substances/actives



Hexachloroacetone (HCA)

Industries   

Product Information

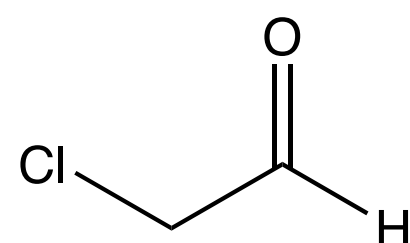
- CAS No. 116-16-5
- Clear, colorless to yellowish liquid with a slightly pungent odor
- Two grades available: min. 99.2% and min. 99.8%

Production





- One of the largest producers worldwide
- Efficient utilization of side streams
- Lead time: campaign production, several tons usually held in stock
- Scale > 500 MT
- Storage stability of at least 12 months
- REACH: SCC*

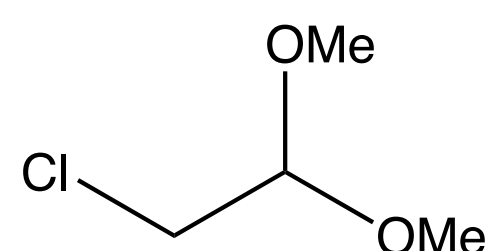
Application

- API synthesis
- Precursor for deuteriochloroform
- Building block for agrochemical substances/actives






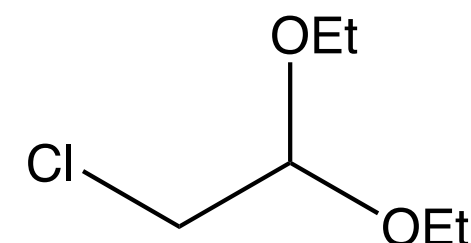
Chloroacetaldehyde, 45% Solution (CLACH)

Industries	   
Product Information	<ul style="list-style-type: none"> • CAS No. 107-20-0 • Clear, colorless to slightly yellow, skin-irritating liquid with a pungent odor • 45.0% aqueous solution • Transportation between 15 °C and 40 °C
Production	<ul style="list-style-type: none"> • One of the largest producers worldwide • Lead time: campaign production, several tons usually held in stock • Scale: >500 MT • Backward integration to VAM and chlorine • Storage stability: 12 months • REACH: SCC
Application	<ul style="list-style-type: none"> • API synthesis • Building block for dyes and agrochemical substances/actives





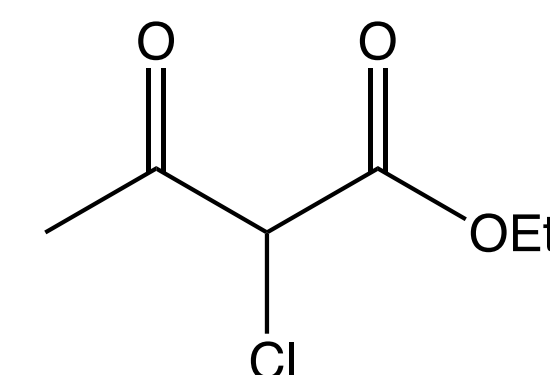
Chloroacetaldehyde Dimethylacetal (CADMA)

Industries	  
Product Information	<ul style="list-style-type: none"> • CAS No. 97-97-2 • Clear, colorless, mobile liquid with a pleasant smell • Content min. 99.0%
Production	<ul style="list-style-type: none"> • One of the largest producers worldwide • Lead time: campaign production, several tons usually held in stock • Scale >500 MT • Backward integration to VAM and chlorine • Storage stability: 12 months • REACH: SCC*
Application	<ul style="list-style-type: none"> • API synthesis, e.g. carbimazole, methimazole • Building block for agrochemical substances/actives • Building block for flavors, e.g. terpene acetals





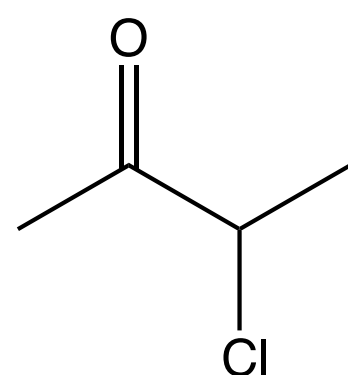
Chloroacetaldehyde Diethylacetal (CADEA)

Industries	 
Product Information	<ul style="list-style-type: none"> • CAS No. 621-62-5 • Content min. 98.0%
Production	<ul style="list-style-type: none"> • Lead time: upon request • Backward integration to VAM and chlorine • REACH: SCC*
Application	<ul style="list-style-type: none"> • API synthesis • Building block for agrochemical substances/actives • Building block for flavors



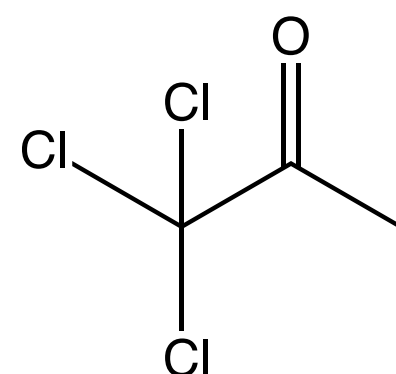
Ethyl-2-Chloroacetoacetate (2-Cl-ACE)

Industries	 
Product Information	<ul style="list-style-type: none"> • CAS No. 609-15-4 • Colorless to yellowish liquid with a pungent odor • Content min. 96.0%
Production	<ul style="list-style-type: none"> • Lead time: campaign production, several tons usually held in stock • Scale > 500 MT • REACH: SCC*
Application	<ul style="list-style-type: none"> • API synthesis, e.g. cimetidine, vitamin B6 • Building block for agrochemical substances/actives • Building block for heterocycles



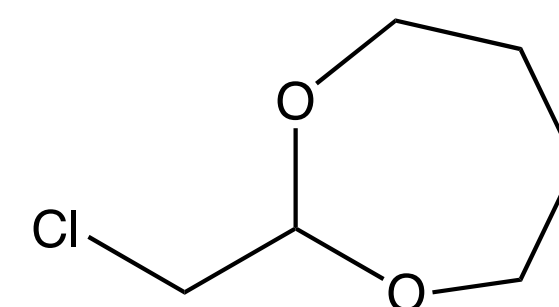
3-Chloro-2-Butanone (3-Cl-MEK)

Industries	
Product Information	<ul style="list-style-type: none"> CAS No. 4091-39-8 Colorless to brownish, mobile, lachrymatory liquid with a pungent odor Content min. 96.0%
Production	<ul style="list-style-type: none"> Lead time: campaign production, several tons usually held in stock Scale > 500 MT REACH: SCC*
Application	<ul style="list-style-type: none"> API synthesis, e.g. sulfamoxole, sulfaguanole Building block for agrochemical substances/actives Building block for heterocycles and aroma chemicals



1,1,1-Trichloroacetone (1,1,1-TCA)

Industries	
Product Information	<ul style="list-style-type: none"> CAS No. 918-00-3
Production	<ul style="list-style-type: none"> Pilot-plant development
Application	<ul style="list-style-type: none"> CA**: 380 hits (36 patents)

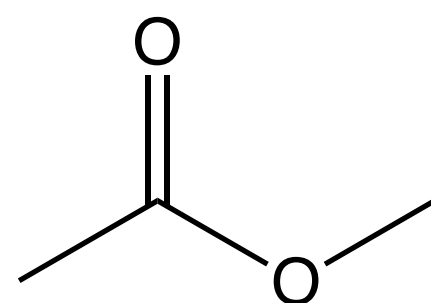


2-(Chloromethyl)-1,3-Dioxepane (CMDO)

Industries	
Product Information	<ul style="list-style-type: none"> CAS No. 54237-96-6
Production	<ul style="list-style-type: none"> Campaign production Backward integration to VAM and chlorine
Application	<ul style="list-style-type: none"> API synthesis Pesticide synthesis Building block for flavors



PRODUCT DETAILS: ORGANIC ESTERS



Methyl Acetate (MetAc)

Industries



Product Information

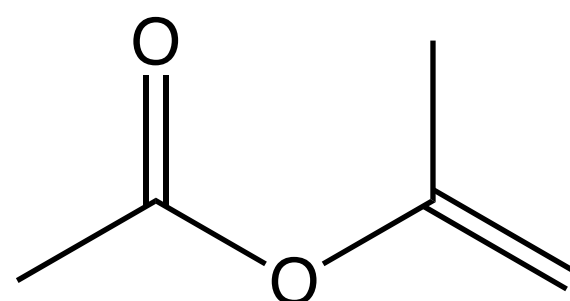
- CAS No. 79-20-9
- Clear, colorless, neutral liquid with a mild, ester-like odor
- Two grades available: min. 97% and min. 99.5%
- Available in drums (full container loads) and bulk containers

Production

- Continuous production
- Capacity of several 1,000 MT per year
- REACH: full registration

Application

- API synthesis
- Building block for agrochemical substances/actives
- A technical solvent in detergent, coatings, adhesives, cosmetics, agrochemical and pharmaceutical industries



Isopropenyl Acetate (IPA)

Industries



Product Information

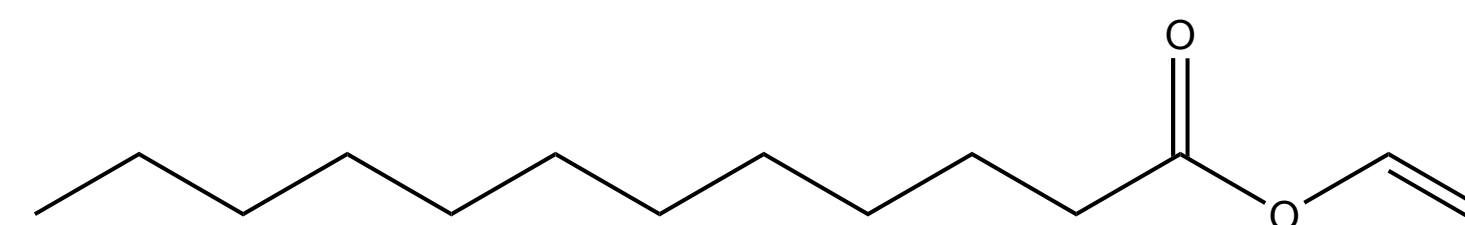
- CAS No. 108-22-5
- Clear, colorless liquid with a pleasant, ester-like odor
- Content min. 99.0%

Production

- Dedicated plant with continuous high-temperature process
- Scale of several 1,000 MT per year
- Parallel production in different reactors
- Backward integration to acetic acid
- REACH: full registration and SCC*

Application

- API synthesis, i.e. mild acylation
- Flavoring and fragrance synthesis



VERSA® 12 (Vinyl Laurate)

Industries



Product Information

- CAS No. 2146-71-6
- Clear, colorless liquid. Immiscible with water
- Stabilized with 3 ppm +/- 1 ppm Hydroquinone (HQ)
- Content min. 98%

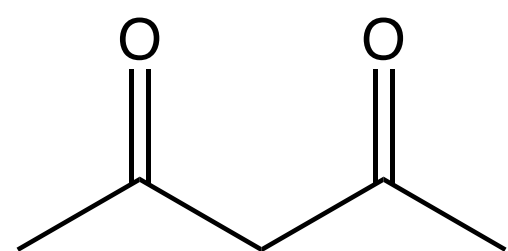
Production

- One of the largest producers worldwide
- Continuous production
- No classification as hazardous material
- Lauric acid from palm kernel oil from sustainable sources (RSPO certified)
- REACH: full registration

Application

- As monomer for producing vinyl polymers
- Special properties to polymers such as hydrophobicity or elasticity
- Specialty applications in nutrition and personal care

PRODUCT DETAILS: DIKETONES



Acetylacetone (AcAc)

Industries



Product Information

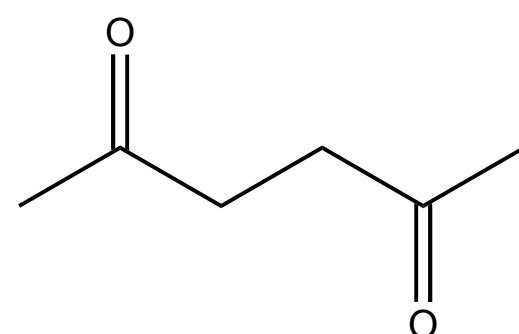
- CAS No. 123-54-6
- Clear, colorless liquid with a ketone-like odor
- Content min. 99.5%
- Keto and enol forms of AcAc coexist in solution
- AcAc is a weak acid (pKa of 9.0)

Production

- Dedicated plant with continuous high-temperature process
- Scale of several 1,000 MT per year
- Parallel production in different reactors and ovens
- Backward integration to acetic acid
- REACH: full registration and SCC*

Application

- Synthesis of metal acetylacetonates for PVC stabilizers
- Precursor for peroxides as radical initiator for polymerization
- API synthesis, e.g. nicarbazine, vitamin B6
- Building block for agrochemical substances/actives



Acetylaceton (ACAN)

Industries



Product Information

- CAS No. 110-13-4
- Clear, colorless liquid

Production

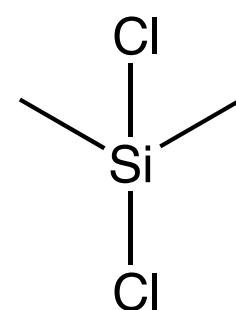
- Lead time: campaign production
- REACH: SCC*

Application

- Specialty solvent
- Protecting group for primary amines
- API synthesis, e.g. isocarboxazid, rolgamidine, mopidralazine

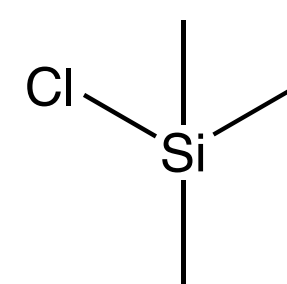


PRODUCT DETAILS: SILYLATING AGENTS



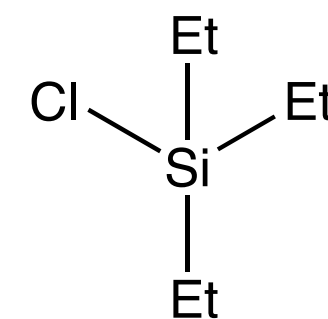
Dimethyldichlorosilane (Silane M2)

Industries	
Product Information	<ul style="list-style-type: none"> CAS No. 75-78-5 Clear, colorless liquid with a pungent odor Content min. 99.0%
Production	<ul style="list-style-type: none"> Continuous Müller-Rochow process Backward integration Supply security ensured by two independent plants with several thousand MT per year REACH: full registration
Application	<ul style="list-style-type: none"> Bi-functional silylating agent for the derivatization of diols



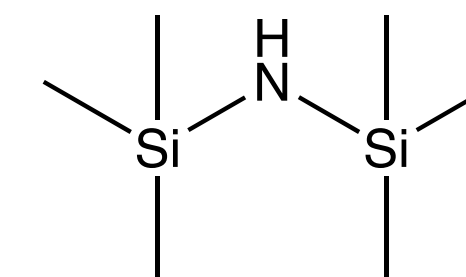
Trimethylchlorosilane (Silane M3, TMSCl)

Industries	
Product Information	<ul style="list-style-type: none"> CAS No. 75-77-4 Clear, colorless, highly flammable liquid Content min. 99.0%
Production	<ul style="list-style-type: none"> Continuous Müller-Rochow process Backward integration Supply security ensured by two independent plants with several thousand MT per year REACH: full registration
Application	<ul style="list-style-type: none"> Universal silylating agent for the derivatization of alcohols, amines, etc. Used in 7-ACA synthesis



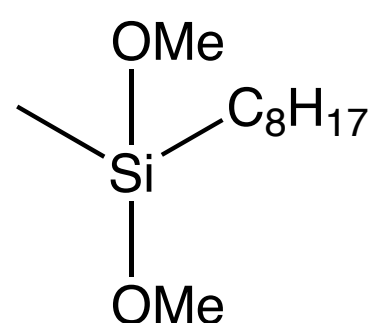
Triethylchlorosilane (Silane E3, TESCI)

Industries	
Product Information	<ul style="list-style-type: none"> CAS No. 994-30-9 Clear, colorless, flammable liquid Content min. 99.0%
Production	<ul style="list-style-type: none"> Campaign production REACH: SCC*
Application	<ul style="list-style-type: none"> Silylating agent for the derivatization of primary and secondary alcohols




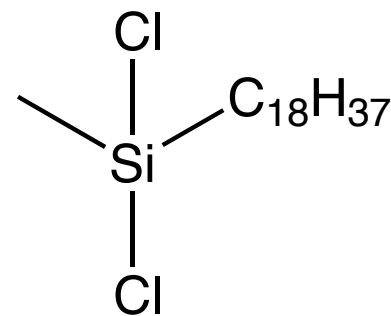
1,1,1,3,3,3-Hexamethyldisilazane (Silazane HMN, HMDS)

Industries	
Product Information	<ul style="list-style-type: none"> CAS No. 999-97-3 Colorless liquid available as min. 97.0% and min. 98.0% grade
Production	<ul style="list-style-type: none"> Dedicated large-scale production Backward integrated to Silane M3 REACH: full registration
Application	<ul style="list-style-type: none"> Universal silylating agent, e.g. for the derivatization of alcohols, carboxylic acids, amines, amides




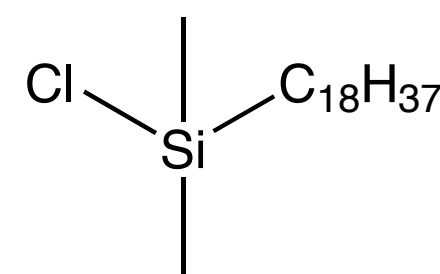
Octylmethyldimethoxy- silane (Silane OM-DMO)

Industries	
Product Information	<ul style="list-style-type: none"> CAS No. 85712-15-8 Clear, colorless liquid with a characteristic odor Content min. 96.0%
Production	<ul style="list-style-type: none"> Alkoxylation technology Backward integration to chlorosilanes Campaign production
Application	<ul style="list-style-type: none"> High-quality derivatization agent for the preparation of rever-sed-phase chromatographic material, e.g. for HPLC columns




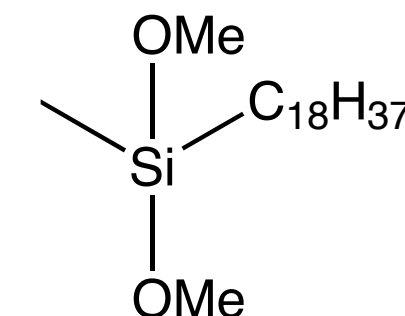
Octadecylmethyl- dichlorosilane (Silane ODM)

Industries	
Product Information	<ul style="list-style-type: none"> CAS No. 5157-75-5 Colorless to slightly colored, caustic liquid Content min. 85.0%
Production	<ul style="list-style-type: none"> Hydrosilylation technology Backward integration to hydrosilanes Campaign production REACH: SCC*
Application	<ul style="list-style-type: none"> High-quality derivatization agent for the preparation of rever-sed-phase chromatographic material, e.g. for HPLC columns




Octadecyldimethylchlorosilane 70% in Toluene (Silane ODM2 in toluene)

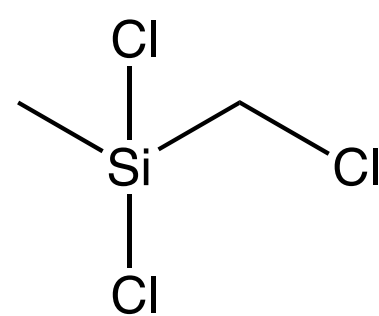
Industries	
Product Information	<ul style="list-style-type: none"> CAS No. 18643-08-8 Clear, colorless to slightly yellow, caustic and highly flammable liquid 70% solution in toluene Content min. 59.0%
Production	<ul style="list-style-type: none"> Hydrosilylation technology Backward integration to hydrosilanes Campaign production REACH: full registration
Application	<ul style="list-style-type: none"> High-quality derivatization agent for the preparation of rever-sed-phase chromatographic material, e.g. for HPLC columns







Octadecylmethyldimethoxy- silane (Silane ODM-DMO)

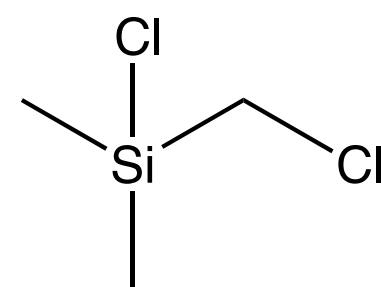
Industries	
Product Information	<ul style="list-style-type: none"> CAS No. 70851-50-2 Colorless liquid with a slight odor Content min. 85.0%
Production	<ul style="list-style-type: none"> Alkoxylation technology Backward integration to chlorosilanes Campaign production REACH: full registration
Application	<ul style="list-style-type: none"> High-quality derivatization agent for the preparation of rever-sed-phase chromatographic material, e.g. for HPLC columns

PRODUCT DETAILS: SILYL BUILDING BLOCKS







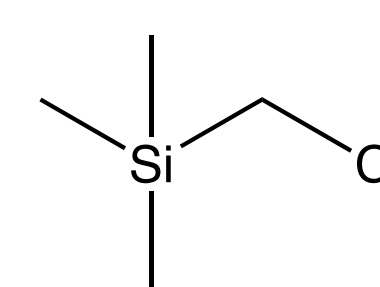
**Dichloro(chloromethyl)-methylsilane
(Silane CMM1)**

Industries	   
Product Information	<ul style="list-style-type: none"> • CAS No. 1558-33-4 • Clear, mobile, colorless to yellowish, caustic liquid with pungent odor • Content min. 99.0%
Production	<ul style="list-style-type: none"> • One of the largest producers worldwide • Proprietary technology • Continuous production in dedicated equipment • Backward integration to silicon and chlorine • REACH: SCC*
Application	<ul style="list-style-type: none"> • Building block for agrochemical substances/actives • Synthesis of silicon-containing intermediates







**Chloro(chloromethyl)-dimethylsilane
(Silane CMM2)**

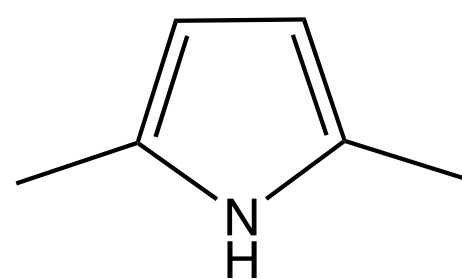
Industries	   
Product Information	<ul style="list-style-type: none"> • CAS No. 1719-57-9 • Clear, mobile, colorless to yellowish, caustic liquid with a pungent odor • Content min. 99.0%
Production	<ul style="list-style-type: none"> • One of the largest producers worldwide • Proprietary technology • Continuous production in dedicated equipment • Backward integration to silicon and chlorine • REACH: SCC*
Application	<ul style="list-style-type: none"> • API synthesis • Precursor for performance products



**(Chloromethyl)-trimethylsilane
(Silane CMM3)**

Industries	   
Product Information	<ul style="list-style-type: none"> • CAS No. 2344-80-1 • Clear, mobile, colorless liquid with a pungent odor • Content min. 98.0%
Production	<ul style="list-style-type: none"> • Lead time: campaign production • Backward integration to Silane CMM2 and MeCl • REACH: SCC*
Application	<ul style="list-style-type: none"> • API synthesis • Building block for agrochemical substances/actives

PRODUCT DETAILS: HETEROCYCLES

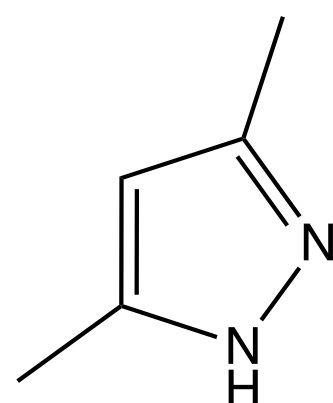


2,5-Dimethylpyrrole (2,5-DMP)

Industries   

Product Information • CAS No. 625-84-3

Production • Campaign production
• REACH: SCC*



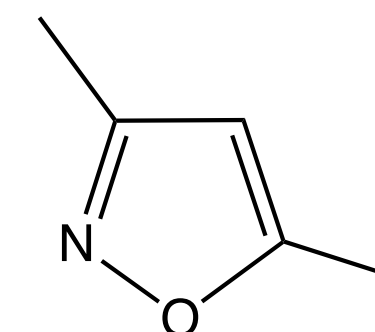
3,5-Dimethylpyrazole (3,5-DMP)

Industries   

Product Information • CAS No. 67-51-6
• White solid with a pleasant odor
• Content min. 99.0%
• Low silicon content
(esp. relevant to coatings)

Production • Campaign production with a typical
quantity of 50 MT
• One of the largest producers globally
• REACH: full registration

Application • Coatings (blocking agent for isocyanates)
• API synthesis



3,5-Dimethylisoxazole (Dimexazole)

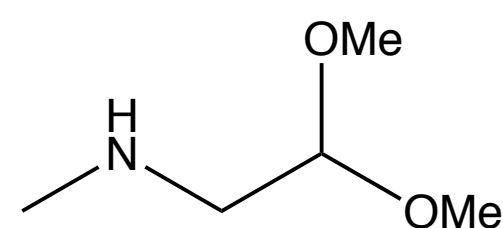
Industries   

Product Information • CAS No. 300-87-8




Production • Pilot-plant development

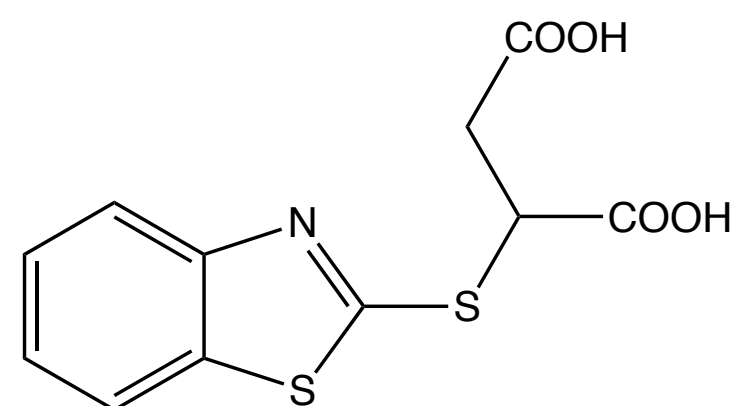
Application • CA**: 391 hits (111 patents)

PRODUCT DETAILS: OTHER FINE CHEMICALS




**Methylaminoacetaldehyde
Dimethylacetal
(MADMA)**

Industries	  
Product Information	<ul style="list-style-type: none"> CAS No. 122-07-6
Production	<ul style="list-style-type: none"> Pilot-plant development
Application	<ul style="list-style-type: none"> CA*: 325 hits (222 patents)

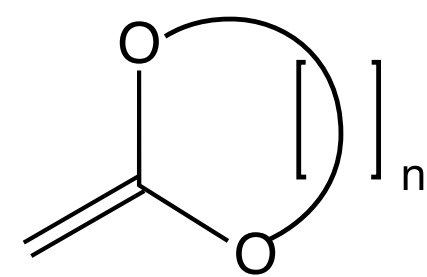


**2-(1,3-Benzothiazol-2-ylsulfanyl)-
Succinic Acid
(BTTBS)**

Industries	
Product Information	<ul style="list-style-type: none"> CAS No. 95154-01-1 Content min. 96.0%
Production	<ul style="list-style-type: none"> Campaign production REACH: full registration
Application	<ul style="list-style-type: none"> Industrial applications



PRODUCT DETAILS: KETENE ACETALS



n=2: 2-Methylene-1,3-Dioxolane

n=4: 2-Methylene-1,3-Dioxepane
(MDO)

Industries



Product Information

- n=2: CAS No. 4362-23-6
- n=4: CAS No. 69814-56-8

Production

- n=2: Laboratory development
- n=4: Laboratory development

Application

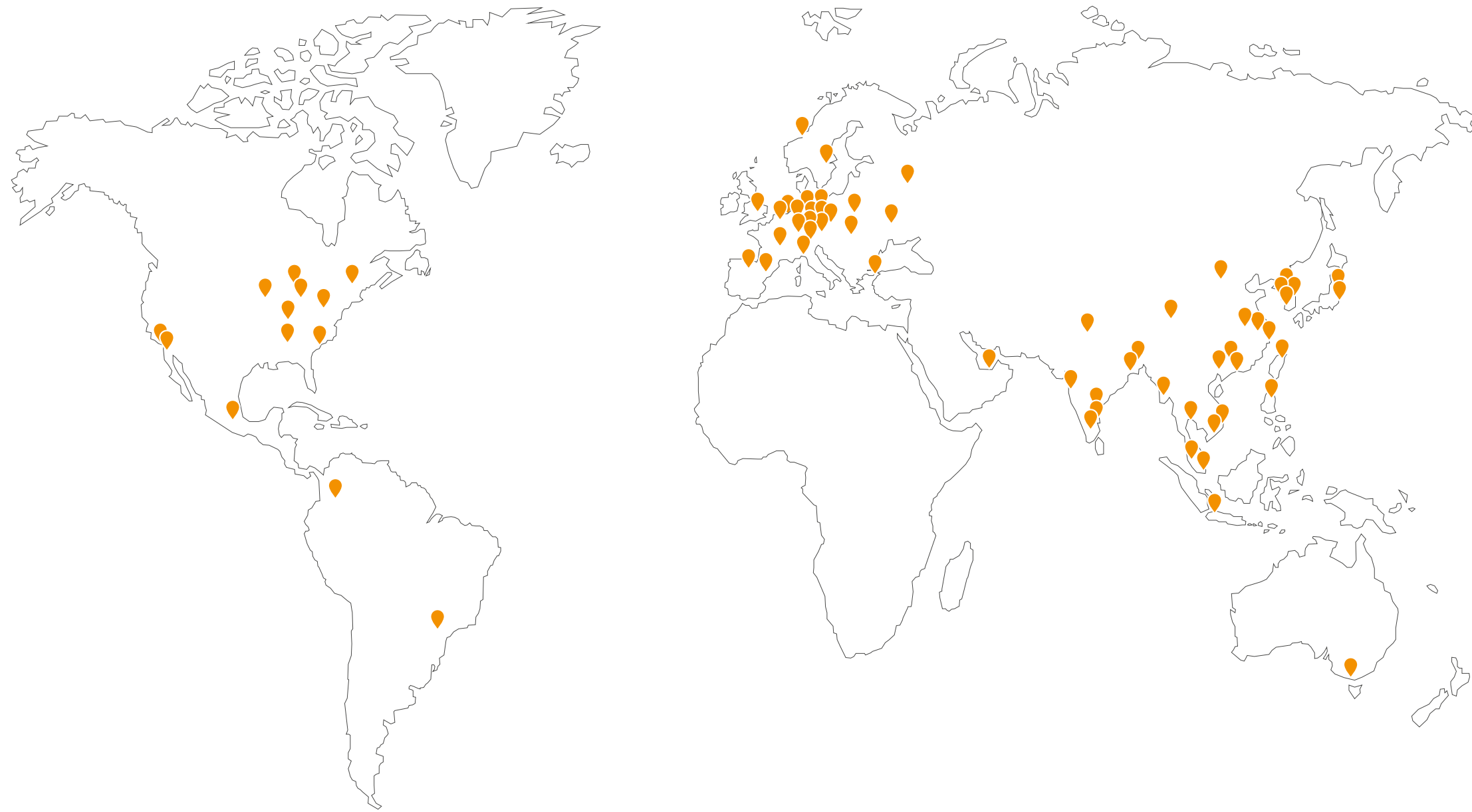
- n=2: CA*: 55 hits (16 patents)
- n=4: CA*: 71 hits (26 patents)
- Biodegradable polymers

*CA: chemical abstracts

Pharma Agro Flavor and Fragrance Industrial



EXPERTISE AND SERVICE NETWORK ON FIVE CONTINENTS



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