

Tosoh Finechem Corporation

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TOSOH FINECHEM

CORPORATE PROFILE



PRODUCT LINES

We are developing our business with halogen and organometallic chemistries as our core technologies.

Regarding halogen chemistry, we have the technology and raw material position to handle all major halogen elements (F, Cl, Br, I), and have created a diverse range of halogen-containing products. Regarding organometallic chemistry, we have the technology and equipment to safely handle Class 3 hazardous substances (pyrophoric and water-restricted substances), and are developing products centered on organic aluminum.

Utilizing these differentiated technologies, we rapidly develop fine organic products that meet market needs and supply them globally, including polymerization catalysts, functional monomers, raw materials for electronic materials, and pharmaceutical intermediates.



Fluorine Compounds

We manufacture various fluorine compounds based on fluorination technology using hydrogen fluoride and tetrafluoroethylene derivatization technology. TFEA, one of our main products, has been highly trusted by our customers for many years as a high-purity pharmaceutical raw material. Diiodo-divinyl compounds derived from tetrafluoroethylene are supplied both domestically and internationally as chain transfer agents and crosslinking agents, which are essential in the production of fluororesins. In addition, CF3I is being used as an environmentally friendly halon/fluorocarbon alternative gas in fields such as fire extinguishing agents and etching gas, and commercial operation of new equipment began in 2019.





Fluorine-containing building blocks

Special gases

2,2,2-Trifluoroethanol (TFEA)

FITECT™ (CF3I)

Fluoropolymer related

- 1,4-Diiodooctafluorobutane (C4-DI)
- 1,6-Divinylperfluorohexane (C6-DV)
- 2,2,2-Trifluoroethyl methacrylate (FLUORESTER®)

Halogenated

compounds

Bromine Compounds

Based on bromine and hydrogen bromide, which are stably supplied by Tosoh, we offer a variety of bromine compounds mainly for use in pharmaceuticals, agrochemicals, and electronic materials. With regard to alkyl bromides, we have established technology to highly purify branched alkyl bromides, and are developing products as pharmaceutical raw materials and more. In addition to supplying high-purity hydrogen bromide gas to the semiconductor field, our bromination technology is also being developed for higher-level functional monomers such as SPINOMAR NaSS.



Alkyl bromide

Allyl bromide (ALB)

iso-Butyl bromide (IBB)

1,3-Dibromopropane (1,3-DBP)

Other bromine compounds

Liquefied hydrogen bromide (p-HBr)



Alkyl aluminum is widely used as a polymerization cocatalyst, which is essential for the production of polyolefins, synthetic rubber, etc. Although these products are pyrophoric substances and require know-how to handle and transport, we have established high quality and thorough safety and delivery systems based on reliable technology and experience. We also offer various grades of aluminoxane (MAO), a co-catalyst for metallocene catalysts used in the production of high value-added polyolefins. In 2021, we established an integrated system starting with the raw material trimethylaluminum (TMAL) to meet the demands of domestic and overseas customers.



Organometallics

Alkyl aluminums

- Triethylaluminum (TEAL)
- Diisobutylaluminum hydride (DIBAL-H)
- Ethylaluminum sesquichloride (EASC)
- Ethylaluminum dichloride (EADC)
- Triisobutylaluminum (TIBAL)
- Tri-n-hexylaluminum (TNHAL)
- Diethylaluminum chloride (DEAC)
- Diethylaluminum ethoxide (DEAL-E)

Polymerization catalysts

Aluminum trititanium dodecachloride

Methylaluminoxane (MAO)

■ Various contract catalysts

Organic metals for electronic materials

Organic metals for electronic materials, such as trimethylindium, are used as raw materials for forming compound semiconductor films that are essential for lighting equipment and electronic devices. Utilizing the high-quality TMAL obtained through our unique manufacturing technology, we are also moving forward with development for applications such as semiconductors and solar cells. Our products are Class 3 hazardous materials that require extremely high purity, and so we have developed a quality control system that includes not only analysis technology but also container management to meet the various needs of our customers.





High-purity organometallics

Trimethylindium (EG-TMI)

Trimethylaluminum (EG-TMAL)

Functiona materials

Functional monomers • Functional materials

The functional monomer SPINOMAR® NaSS has an overwhelming market share worldwide and is used in a variety of applications, including dyeing aids and reactive emulsifiers. In addition, resist monomers made using our unique efficient manufacturing method are widely used in the semiconductor field. Functional materials that add functionality to the surface include CLESCORT®, a transparent coating agent that provides UV shielding and antibacterial/antiviral properties, and REPELFINE®-E, a fluorine-based mold release agent suitable for precision mold release. We will continue to develop unique materials that add functionality to surfaces.



Nacc

SPINOMAR® NaSS (Sodium p-Styrenesulfonate)

CLESCODE®

REPELFINE®-E

Resist monomers

p-tert-Butoxystyrene (PTBS)

p-(1-Ethoxyethoxy)styrene (PEES)

p-Acetoxystyrene (PACS)

Surface modifiers

HISTORY

In 2017, Tosoh Finechem Corporation integrated its business with Tosoh F-Tech Inc. and Tosoh Organic Chemical Co., Ltd., further strengthening and enhancing our management capabilities.

Based on the solid technological capabilities built up by each of the former companies, we will continue to strive to become a company that creates the future of organic fine chemicals.

Tosoh Organic Chemical Co., Ltd.

of SPINOMAR NaSS

Tosoh Organic Chemical

Established as

Commenced production

of brominated organic

compounds

SPINOMAR NaSS facility, commenced production

Completed new

1979

1981

Tosoh Finechem Corporation

1965 Established Toyo Stauffer Chemical Co., Ltd. through the merger of Toyo Soda Kogyo Co., Ltd. (now Tosoh Corporation) and StaufferChemical Company

1967 Commenced production of titanium trichloride

1969 Commenced production of alkyl aluminum

Tosoh F-Tech Inc.

1975

Established as Nippon **Halon Corporation** through the meger of Toyo Soda Kogyo Co., Ltd. (currently Tosoh Corporation) and Onoda Cement Co., Ltd.

Commenced production of ultrapure organometalics for semiconductors

Completed highly active catalyst production facility, commenced production

1985 Commenced production of trifluoroethanol and tetrafluoroethylene

Company name changed to Tosoh Akzo Co., Ltd.

> 1993 Changed company name to F-Tech Inc.

2002

Changed company name to Tosoh F-Tech Inc.

2000 Commenced production of KrF resist monomer (PTBS, etc.)

1987

1988

2005 Launched production of liquid hydrogen bromide

2000 Became wholly-owned subsidiary of Tosoh Corporation: name changed to Tosoh **Finechem Corporation**

1982

1983

2012 Started production of solid MAO

1989

Three companies merged to from **Tosoh Finechem Corporation**

2019 CF3I plant commercial operation begins

2021

New MAO plant equipment completed Started production of trimethylaluminum

COMPANY PROFILE

Share holder Tosoh Corporation 100%

