

Tokuyama Factory

Location: 1-1, Mikage-cho, Shunan City, Yamaguchi 745-8648, Japan
 Number of employees: 1,561
 Total site area: 1.91 million m²
 Main products: Cement, inorganic chemical products, organic chemical products, polycrystalline silicon, fumed silica, polyvinyl chloride, and other products

Hideki Adachi
 Tokuyama Factory
 General Manager



Still situated at the Company's first business site, the Tokuyama Factory is the Group's main manufacturing facility, and its products account for about 90% of non-consolidated sales. The factory operates with the motto, "Go to work healthy and return home happy." Aiming to achieve 12.4 million accident-free hours at the factory and 9 million accident-free hours at its contractors, the factory is working hard to keep everyone on site happy and safe at work. In fiscal 2015, the factory's top priorities include: (1) raising risk awareness by expanding "risk simulation" education and training programs to all employees; (2) discussing accident case studies to identify their causes and find ways to prevent them; and (3) dialoguing on safety with contractors, and providing feedback on the results.

Performance Data

	Unit	FY2010	FY2011	FY2012	FY2013	FY2014
S0x emissions	Metric tons	1,630	2,180	1,450	750	550
NOx emissions	Metric tons	8,000	8,600	8,400	9,200	8,850
Soot emissions	Metric tons	148	191	190	174	135
Industrial water consumption	Million metric tons	40.5	43.8	41.3	42.2	41.7
Effluent discharged	Million metric tons	25.5	24.2	24.8	22.1	23.9
COD level	Metric tons	124	119	119	132	110
Total nitrogen discharged	Metric tons	110	108	94	70	89
Total phosphorous discharged	Metric tons	2.3	2.8	2.7	2.4	2.6
PRTR-designated substance emissions	Metric tons	37	32	39	33	34
Waste generated	Thousand metric tons	312	379	381	395	354
Waste sent to landfills	Metric tons	417	490	320	277	313
Energy consumption*	Thousand gigajoules	49,800	52,400	44,100	43,700	44,200
CO ₂ emissions* (originating from fossil fuel)	Thousand metric tons	4,510	4,730	4,020	4,020	4,040
Complaints	Cases	5	3	0	1	0

* In accordance with a revision of Japan's Act on the Rational Use of Energy, figures based on calorific values and other factors have been recalculated retrospectively to 1990.

Emissions and Transfer of Specific PRTR-Designated Substances in Fiscal 2014

Unit: metric tons (mg-TEQ equivalency for dioxins)

Substance Name	Regulatory Number	Amount of Emissions				Amount Transferred
		Atmospheric	Water	Soil	Subtotal	
Chloroethylene (vinyl chloride)	94	5.0	0.0	0.0	5.0	0.0
1,2-Dichloroethane	157	4.9	0.0	0.0	4.9	0.5
Toluene	300	3.9	0.0	0.0	3.9	36.6
Chloromethane (methyl chloride)	128	3.0	0.0	0.0	3.0	0.0
Cresol	86	0.0	2.8	0.0	2.8	0.0
Water-soluble compounds of zinc	1	0.0	1.7	0.0	1.7	0.0
Dichloromethane (methylene chloride)	186	1.5	0.0	0.0	1.5	0.0
Chloroform	127	0.9	0.0	0.0	0.9	0.0
1,2-Epoxypropane (propylene oxide)	68	0.6	0.0	0.0	0.6	2.3
1,2-Dichloropropane	178	0.4	0.0	0.0	0.4	183.7
Carbon tetrachloride	149	0.1	0.0	0.0	0.1	0.0
2,2-Azobisisobutyronitrile	16	0.0	0.0	0.0	0.0	0.0
Water-soluble copper salt	272	0.0	0.0	0.0	0.0	5.4
Hydrazine	333	0.0	0.0	0.0	0.0	0.0
Hydrogen fluoride and its water-soluble form	374	0.0	0.0	0.0	0.0	0.0
Benzene	400	0.0	0.0	0.0	0.0	0.0
Boron compounds	405	0.0	0.0	0.0	0.0	0.1
Dioxins	243	8.0	1.4	0.0	9.4	0.0
Total (excluding dioxins)		20.2	4.5	0.0	24.7	228.5

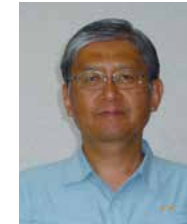
Substances are listed in descending order of emissions levels; substances with no emissions are listed in order of the regulatory number. Water refers to public waters.

Amount transferred indicates the sum of the quantity transferred to sewage systems and the quantity subject to intermediate treatment. Total figures have been rounded to the first decimal place.

Kashima Factory

Location: 26 Sunayama, Kamisu City, Ibaraki 314-0255, Japan
 Number of employees: 78
 Total site area: 101,000m²
 Main products: *Produced by Tokuyama Corporation*
 Bulk pharmaceuticals for X-ray contrast agents, stomach and duodenal ulcer treatment drugs, and diabetes drugs; optical materials (plastic lens monomer, light modulating materials, and hard coating solutions); raw materials for electronic materials; metal cleaning solvents
Produced by Tokuyama Dental Corporation
 Dental materials (restorative materials, adhesives, relining materials, impression materials and investment materials)

Fumiaki Iwasaki
 Kashima Factory
 General Manager



The Kashima Factory strives to recycle waste matter while placing the utmost importance on the proper management and handling of chemical substances.

As a result of this approach, the factory achieved an 80% effective utilization rate of waste in fiscal 2014, maintaining the high recycling rate achieved in the previous fiscal year.

Looking ahead, the Kashima Factory is examining the feasibility of material and thermal recycling as it works to increase its effective utilization rate for all types of waste matter.

Waste sent to landfills for final disposal amounted to 11 metric tons, and the Company achieved its “zero emissions” target of 99%.

Meanwhile, Tokuyama Dental Corporation modified the operating conditions of treatment equipment to eliminate handling in certain processes in an effort to reduce its atmospheric emissions of exhaust gases. Consequently, the company maintained the same level of share of total atmospheric emissions from the factory with fiscal 2014.

Performance Data

	Unit	FY2010	FY2011	FY2012	FY2013	FY2014
Industrial water consumption	Thousand metric tons	77	71	76	51	48
Effluent discharged	Thousand metric tons	93	90	96	66	63
COD level	metric tons	4	4	4	3	3
PRTR-designated substance emissions	metric tons	2	2	1	2	2
Waste generated	metric tons	857	909	930	919	1,020
Waste sent to landfills	metric tons	12	7	7	7	11
Energy consumption*	Thousand gigajoules	60	57	59	36	36
CO ₂ emissions* (originating from fossil fuel)	metric tons	2,340	2,324	2,399	2,476	2,465
Complaints	Cases	0	0	0	0	0

* In accordance with a revision of Japan's Act on the Rational Use of Energy, figures based on calorific values and other factors have been recalculated retrospectively to 1990.

Emissions and Transfer of Specific PRTR-Designated Substances in Fiscal 2014

Unit: metric tons (mg-TEQ equivalency for dioxins)

Substance Name	Regulatory Number	Amount of Emissions				Amount Transferred
		Atmospheric	Water	Soil	Subtotal	
Chloroform	127	1.1	0.3	0.0	1.5	36.2
Toluene	300	0.4	0.0	0.0	0.4	15.4
Dichloromethane	186	0.4	0.0	0.0	0.4	2.3
Acetonitrile	13	0.0	0.0	0.0	0.0	1.3
o-Methylstyrene	149	0.0	0.0	0.0	0.0	0.0
1,4-Dioxane	150	0.0	0.0	0.0	0.0	0.1
N,N-Dimethylacetamide	213	0.0	0.0	0.0	0.0	4.2
N,N-Dimethylformamide	232	0.0	0.0	0.0	0.0	13.1
Triethylamine	277	0.0	0.0	0.0	0.0	0.0
2-Vinylpyridine	338	0.0	0.0	0.0	0.0	0.2
Methacrylic acid 2,3-Epoxypropyl	417	0.0	0.0	0.0	0.0	0.0
Total		2.0	0.3	0.0	2.3	72.7

Notes: All figures are the numerical sum for Tokuyama Corporation and Tokuyama Dental Corporation.

Substances are listed in descending order of emissions levels; substances with no emissions are listed in order of the regulatory number Water refers to public waters.

Amount transferred indicates the sum of the quantity transferred to sewage systems and the quantity subject to intermediate treatment.

Total figures have been rounded to the first decimal place.

Tokuyama recognizes that its group companies must be fully engaged with the issues addressed by its Responsible Care activities. The Company has concluded a CSR Management Agreement with its manufacturing subsidiaries in and outside of Japan and is providing them with assistance to carry out these activities. The Company collects data from group companies on their environmental impact, safety management, and other indicators, and conducts safety, environmental, and quality audits at several subsidiaries each year. In this way, Tokuyama is closely following the Responsible Care activities at each company and ensuring that they are complete. Tokuyama also shares news on regulatory trends and other relevant information with its group companies, and helps them acquire ISO 9001 and ISO 14001 certification.

11 Group Companies with ISO 9001 and/or ISO 14001 Certification

Group Company	ISO9001	ISO14001	Group Company	ISO9001	ISO14001
Sun-Tox Co., Ltd.	●	●	Tokuyama Siltech Co., Ltd.	●	●
Excel Shanon Corporation	●	—	Sun Arrow Kasei Co., Ltd.	—	●
Tohoku Shanon Corporation	●	●	ASTOM Corporation	●	●
A&T Corporation	●*	●	Shin Dai-ichi Vinyl Corporation	—	●
Figaro Engineering Inc.	●	—	Tokuyama Polypropylene Co., Ltd.	●	●
Tokuyama Dental Corporation	—*	●			

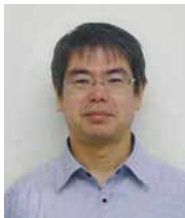
● = Acquired certification
 ● = Certification acquired by a worksite of the group company
 * = Acquired ISO 13485 certification

Sun·Tox Co., Ltd.

Established: February 14, 1992
 Shareholder: Tokuyama Corporation (100%)

Head office: Akasaka Enoki-zaka Mori Building, 1-7-1 Akasaka, Minato-ku, Tokyo, Japan
 Business activities: Manufacture and sale of biaxial-oriented polypropylene films and cast polypropylene films

Kanto Plant



Kazunori Shimada
Plant Manager



Location: 3075-18 Shimasu, Itako City, Ibaraki, Japan
 Number of employees: 185
 Total site area: 55,800 m²

Sun-Tox's Kanto Plant manufactures biaxial-oriented polypropylene films and cast polypropylene films, which are used for food packaging and other applications, totaling about 28,000 metric tons annually. As a Type 1 Designated Energy Management Factory under the Japan's Act on the Rational Use of Energy, the Kanto Plant strives to cut down on its overall energy consumption on a per-unit basis.

The plant also conducts initiatives to improve productivity and reduce waste, and actively interacts with its local community by participating in cleanup activities within the industrial park where it is located. As it continues to implement three management systems, namely Japan's Occupational Safety and Health Management System (OSHMS), ISO 14001, and ISO 9001, the Kanto Plant is building on its achievements with the aim to be a community-based factory.

Performance Data

	Unit	FY2010	FY2011	FY2012	FY2013	FY2014
Waste generated	metric tons	56	57	26	15	20
Waste sent to landfills	metric tons	38	43	7	4	10
Energy consumption	Thousand gigajoules	344	341	340	360	351
CO ₂ emissions	Thousand metric tons	19	19	19	20	20
SO _x emissions	metric tons	0.3	0.4	0.3	0.2	0.3
NO _x emissions	metric tons	0.6	0.7	0.6	0.7	0.6
Soot emissions	metric tons	0.04	0.04	0.03	0.06	0.05

Tokuyama Plant



Naoki Ueda
Plant Manager



Location: 7-7, Harumi-cho, Shunan City, Yamaguchi, Japan
 Number of employees: 154
 Total site area: 24,100 m²

Sun-Tox's Tokuyama Plant manufactures environmentally friendly biaxial-oriented polypropylene films, which are mainly used for food and beverage packaging, amounting to about 23,000 metric tons annually.

As part of its environmental initiatives, the plant is actively working to reduce per-unit energy consumption and increase recycling rates. With respect to safety, it acquired OSHMS certification in 2013 for all of its departments including R&D departments. Under the slogan, "Strictly following safety procedures, making manufacturing enjoyable, and never compromising quality," the plant aims to keep its facilities operating safely so it can be depended upon by the community, customers and employees.

Performance Data

	Unit	FY2010	FY2011	FY2012	FY2013	FY2014
Waste generated	metric tons	80	70	67	66	76
Waste sent to landfills	metric tons	9	1	2	2	1
Energy consumption	Thousand gigajoules	434	448	445	463	458
CO ₂ emissions	Thousand metric tons	26	26	26	27	27
PRTR-designated substance emissions	metric tons	0.1	0.0	0.0	0.0	0.0
Complaints	Cases	0	0	0	0	0

Sun·Arrow Kasei Co., Ltd.

Established: February 1, 1999
 Shareholder: Tokuyama Corporation (100%)
 Head office: Nakanoshima Central Tower, 2-2-7 Nakanoshima, Kita-ku, Osaka, Japan
 Business activities: Manufacture and sale of polyvinyl chloride compounds

Tokuyama Plant



Yasuto Yasuzawa
Plant Manager

Sun Arrow Kasei's Tokuyama Plant manufactures and sells polyvinyl chloride compounds used for pipes, joints, and other items essential for upgrading infrastructure, as well as resin window frames, which are highly effective for saving energy.

The plant practices ISO 14001 environmental management, and ensures safety and prevents accidents by having all employees participate in activities designed to eliminate problems, identify near-miss situations, and practice the 5S principles. Owing to this approach, the plant has maintained an accident- and disaster-free record for 15 years since its establishment.

In fiscal 2015, the plant intends to strictly enforce internal controls while carrying out Responsible Care activities based on a safety-first policy for all operations.

Location: 1-2 Harumi-cho, Shunan City, Yamaguchi, Japan
 Number of employees: 24
 Total site area: 3,280 m²



Performance Data

	Unit	FY2010	FY2011	FY2012	FY2013	FY2014
Power consumption	Thousand kilowatt hours	2,735	2,763	2,455	2,562	2,473
Waste plastic produced	metric tons	124	110	107	125	108
Waste plastic effectively used	metric tons	124	110	107	124	105
Waste sent to landfills offsite for disposal	metric tons	12.5	10	15	7	8
Steam usage	metric tons	240	240	240	240	240
Industrial water consumption	Thousand metric tons	65	65	65	65	65

Tokuyama Polypropylene Co., Ltd.

Established: April 2, 2001
 Shareholder: Tokuyama (50%), Prime Polymer Co., Ltd. (50%)
 Head office: 1-1 Harumi-cho, Shunan City, Yamaguchi, Japan
 Business activities: Manufacture and sale of polypropylene resin and flexible polypropylene resin

Tokuyama Plant



Hiroaki Endo
Plant Manager

Tokuyama Polypropylene's Tokuyama Plant conducts risk assessments of processes, facilities, and operations, and takes measures to identify near-miss situations and points of concern, in order to enhance the plant's safety culture. The result has been a perfect accident- and disaster-free record since the time it was first established as Tokuyama's polypropylene film business 39 years ago.

The plant is scheduled to obtain recertification in 2015 under the High Pressure Gas Safety Act and the Ordinance on Safety of Boilers and Pressure Vessels, and is pursuing Responsible Care activities with the goals of extending its accident- and disaster-free record, reducing its environmental impact, and eliminating customer complaints related to quality.

Location: 1-1, Harumi-cho, Shunan City, Yamaguchi, Japan
 Number of employees: 62
 Total site area: 70,997 m²



Performance Data

	Unit	FY2010	FY2011	FY2012	FY2013	FY2014
Industrial water consumption	Thousand metric tons	329	366	343	411	308
Waste generated	metric tons	180	123	160	116	89
Waste sent to landfills	metric tons	3.8*	0	1.9*	15	2.4*
Unit Energy Consumption Index (Fiscal 2002=100)	%	86	88	88	84	76

* Year with periodic maintenance