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ISO 9001 and 14001 certified

Chukoh Chemical Industries has been certified under ISO 9001 and 14001, which are international standards for quality and environmental management.

■Scope of registration / Design, manufacture, and sale of products containing fluororesin and products with fluororesin or silicone resin coatings. Design and management of consignment manufacturing of biodegradable resin products.

Contact Information

For inquiries on our products in general, please make inquiries by e-mail. Please feel free to contact us.

mail : support@chukoh.co.jp

⚠ Caution

- Do not use for medical applications or other usages involving a contact with human body.
- Observe the related laws and regulations for disposal. Do not incinerate in any case.
- Do not use at the temperature exceeding the maximum service temperature.
- Please read the catalogue and product safety data sheet (SDS) on our website to maintain the original functions of product and ensure safe use.

www.chukoh.com/



CHUKOH FLO™
SKYTOP™ FGT Series
Chukoh Chemical Industries, Ltd.



Pioneer of the Membrane Structure era of Japan.

Since our foundation as a manufacturer of all kinds of fluoroplastic products, we have always made great effort to develop new products and novel technologies.

Above all, our fabric products, fluoroplastic coated glass cloths, are evaluated as top products worldwide in both quality and the scale of production.

We developed permanent architectural membrane materials for roofs, SKYTOP products, for the first time in our country by capitalizing on the manufacturing technologies of these fabric products.

The full-fledged membrane structure age in our country began with our SKYTOP products. The safety and functionality of SKYTOP Architectural Membranes have been verified by a long history of successful projects in many countries.



Suvarnabhumi International Airport / Thailand

Types of Membrane Structures

Framed Membrane Structure

Types of framed structures that are composed of frames formed into three-dimensional shapes such as mountain-shapes, arch-shapes, etc. and membrane materials covering those frames as roofs and walls.

Suspension Membrane Structure

Types of structures that use suspending membrane materials as their main structural elements.

Air-supported Structure

Types of Structures that are supported by air fed into space totally covered with membrane materials.

Advantages of Membrane Structures

Saving of Energy Cost

SKYTOP products have the high reflectivity and low absorption rate of sunlight as well as small heat capacity. So, the influx of solar energy into the inside of buildings is held low.

Comfortable Space Filled with Natural Light

The sunlight through SKYTOP changes into naturally diffused light with faint shadows, so that you can see things in their original colors that they have outdoors. In addition, since SKYTOP let in enough amount of light to grow plants indoors, comfortable spaces with outdoor feelings can be obtained.

Flexible Design Spreading Image

Since membrane structures generally cover large space with membrane materials without using internal support elements, flexible design and versatile space utilization are realized.

Everlastingly Clean Appearance

Thanks to the anti-stick property and water repellency of fluoroplastics, dust and smudge piled up on the SKYTOP surface are washed away every time it rains. As a result, the SKYTOP surface is kept clean and white.

Characteristics

Incombustibility

SKYTOP products, which are composed of incombustible polytetrafluoroethylene (PTFE) resins and glass cloths properties have excellent incombustibility.

Toughness

In general, as the diameter of the fiber filament decreases, its tensile strength per unit area increases and its diameter of loop decreases. Since SKYTOP uses B filaments that are currently the finest glass fiber filament in the world, the sufficient strength and safety of membrane structures are ensured when the structures are composed of SKYTOP products.

Solar Transmission

SKYTOP is translucent, so that sufficient natural light to grow plants can be obtained inside the structures. Since the light through SKYTOP changes into naturally diffused light with faint shadows, inner space with soft feelings can also be created.

Thermal Properties

The original white color of SKYTOP reflects most of the solar energy, so, the influx of heat into the building is minimized. In addition, the adoption of the double-layer membrane structures, which use inner membrane materials, further improves the thermal insulation effect under air-conditioning.

Weatherability

As SKYTOP is fully coated with PTFE resins, it is unaffected by ultraviolet light and airborne pollutants. Therefore, it is capable of maintaining the function and safety as a roof material for a long period.

Self-cleaning Property

Dust and airborne pollutants that are deposited on the SKYTOP surface are washed away every time it rains, so that the SKYTOP surface is kept clean everlastingly without any special cleaning.

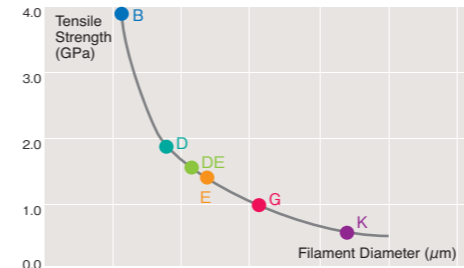
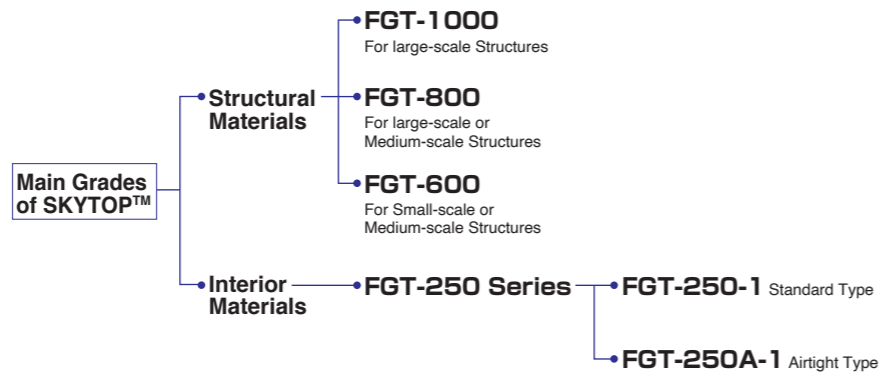
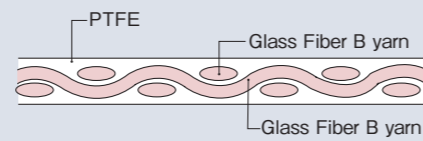
Sound Absorption Property

Since Interior membrane materials have moderate flexibility and air permeability, they give excellent sound absorption property to the membrane structures. The adoption of them as inner membranes of double-layer membrane structures will enhance acoustic effects inside the structures.

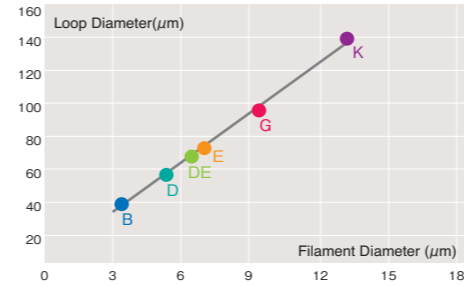


Tohigi Sports Park Athletics Stadium / Tohigi

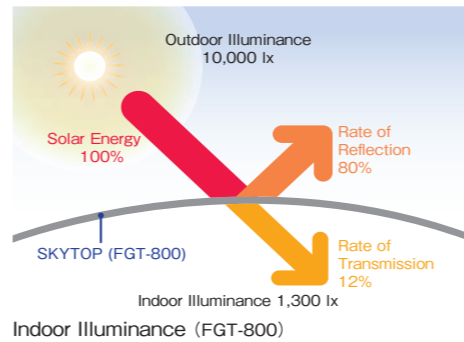
The Structure of SKYTOP™ (Cross-sectional view)



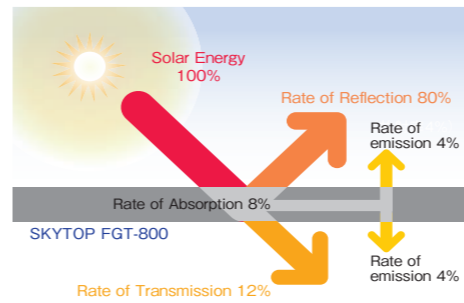
Filament Diameter vs. Tensile Strength



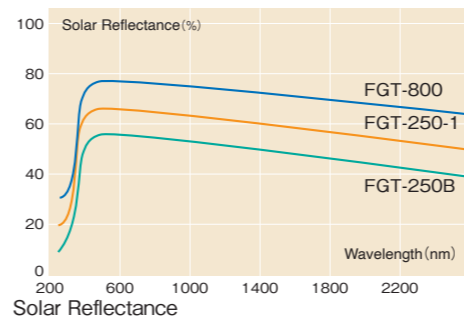
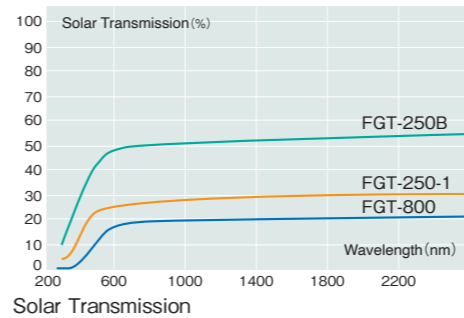
Filament Diameter vs. Loop Diameter



Indoor Illuminance (FGT-800)



Solar Energy Balance (FGT-800)



Structural Materials

Items	Unit	FGT-1000	FGT-800	FGT-600	Test Method
Thickness (nominal)	mm	1.00	0.80	0.60	ISO 2286-3
Weight (nominal)	g/m ²	1700	1300	1000	ISO 2286-2
Tensile Strength (minimum)	Warp	4400	3520	2940	ASTM D 4851
	Fill	4000	2820	2350	
Tensile Strength (minimum)	Warp	8200	7000	5800	ISO 1421 or DIN 53354
	Fill	7500	6000	4600	
Tear Strength (minimum)	Warp	360	260	200	ASTM D 4851
	Fill	400	260	200	
Tear resistance (minimum)	Warp	500	400	350	DIN 53363
	Fill	550	400	380	
Solar Transmission after bleaching (nominal)	%	10	12	15	ASTM E 424
Solar Reflectance after bleaching (nominal)	%	82	80	78	ASTM E 424

* Values shown above are standard values.

Interior Materials

Items	Unit	FGT-250-1	FGT-250A-1	Test Method
Thickness (nominal)	mm	0.35	0.40	ISO 2286-3
Weight (nominal)	g/m ²	470	600	ISO 2286-2
Tensile Strength (minimum)	Warp	1920	1640	ASTM D 4851
	Fill	1440	1250	
Tensile Strength (minimum)	Warp	3600	3000	ISO 1421 or DIN 53354
	Fill	2700	2300	
Tear Strength (minimum)	Warp	170	110	ASTM D 4851
	Fill	100	80	
Tear Strength (minimum)	Warp	280	190	DIN 53363
	Fill	180	140	
Solar Transmission after bleaching (nominal)	%	19	18	ASTM E 424
Solar Reflectance after bleaching (nominal)	%	78	78	ASTM E 424
Air Permeability (nominal)	cm ³ /cm ² ·s	8	—	JIS L 1096
Sound Absorption Coefficient (nominal)	NRC	0.45	—	JIS A 1409

* Values shown above are standard values.

Obtained Certifications

Fire Performance	FGT-1000	FGT-800	FGT-600	FGT-250	Test Method
Incombustibility of substrates	Pass	Pass	Pass	Pass	ASTM E 136
Burning characteristics	Flame spread	0	0	0	ASTM E 84
	Smoke density	15	0	5	
Fire resistance of roof coverings	ClassA	ClassA	ClassA	-	ASTM E 108
Flame resistant	Large scale	Pass	Pass	Pass	NFPA 701
	Small scale	Pass	Pass	Pass	
Non-combustibility of substrates	Pass	Pass	Pass	-	BS 476 Part 4
Ignitability	P	P	P	-	BS 476 Part 5
Fire propagation	I=3.5	I=2.8	I=2.2	-	BS 476 Part 6
Spread of flame	Class 1	Class 1	Class 1	-	BS 476 Part 7
Incombustibility certification	Pass	Pass	Pass	Pass	Building Standard Law of Japan
Fire behaviour of building materials and elements	Class B1	Class B1	Class B1	Class B1	DIN 4102

* For other grades, please contact us.

SKYTOP™
Architectural Membrane
Structures

SKYTOP is used in various buildings around the world by advantage of its excellent features such as dirt-resistant, lightweight and flexible design.

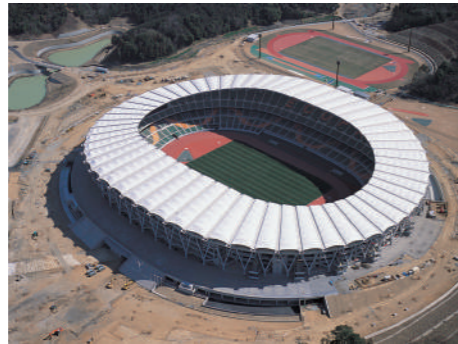
1987 ~ 2000



■ Shellcom Sendai
Completed : 1999 Location: Miyagi



■ Kashima Soccer Stadium
Completed : 2000 Location: Ibaragi



■ Ecopa Stadium
Completed : 2000 Location: Shizuoka



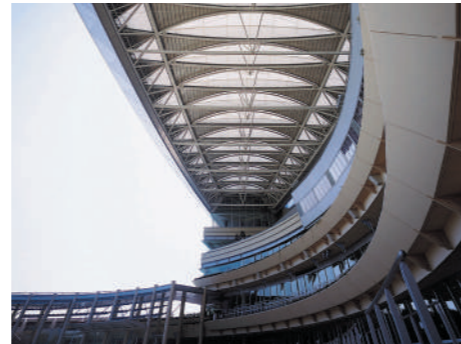
■ Inzai Elementary School
Completed : 1991 Location: Chiba



■ Inazawa Station
Completed : 1999 Location: Aichi



■ Tokyo Dome
Completed : 1987 Location: Tokyo



■ Kokura Racecourse
Completed : 1995 Location: Fukuoka



■ Yamaguchi Prefectural Kirara Park
Completed : 2000 Location: Yamaguchi



■ Koriyama Station Taxi Stand
Completed : 1999 Location: Fukushima

2001 ~ 2010



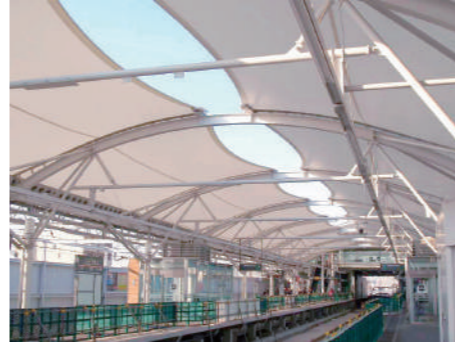
■ Jeju World Cup Stadium
Completed : 2001 Location: Korea



■ Nelson Mandela Bay Stadium
Completed : 2007 Location: Republic of South Africa



■ Yas Marina Circuit
Completed : 2008 Location: Abu Dhabi



■ Motosumiyosi Station
Completed : 2006 Location: Kanagawa



■ Shanghai Pudong International Airport
Completed : 2006 Location: China



■ Pompidou Centre Metz
Completed : 2010 Location: France

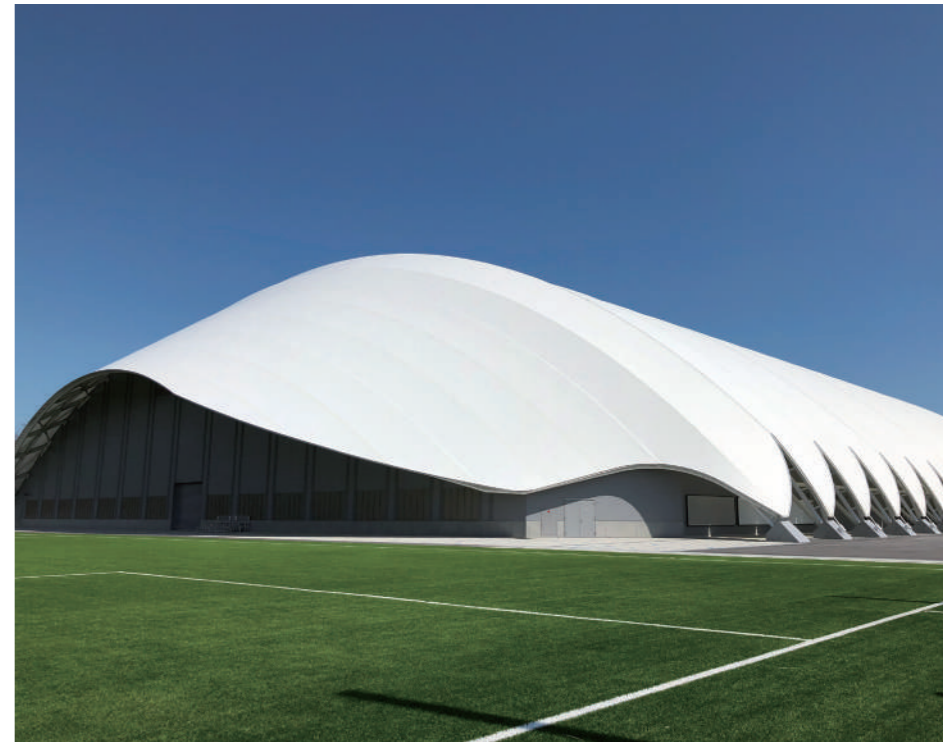
2011 ~ present



■ Kanaya Kindergarten
Completed : 2014 Location: Fukushima



■ Hakata Station
Completed : 2011 Location: Fukuoka



■ J-VILLAGE All-weather football practice field
Completed : 2018 Location: Fukushima



■ Takanawa Gateway Station
Completed : 2020 Location: Tokyo



■ Nagasaki Prefectural Sport Stadium
Completed : 2013 Location: Nagasaki



■ Haneda Airport Terminal 3
Completed : 2013 Location: Tokyo