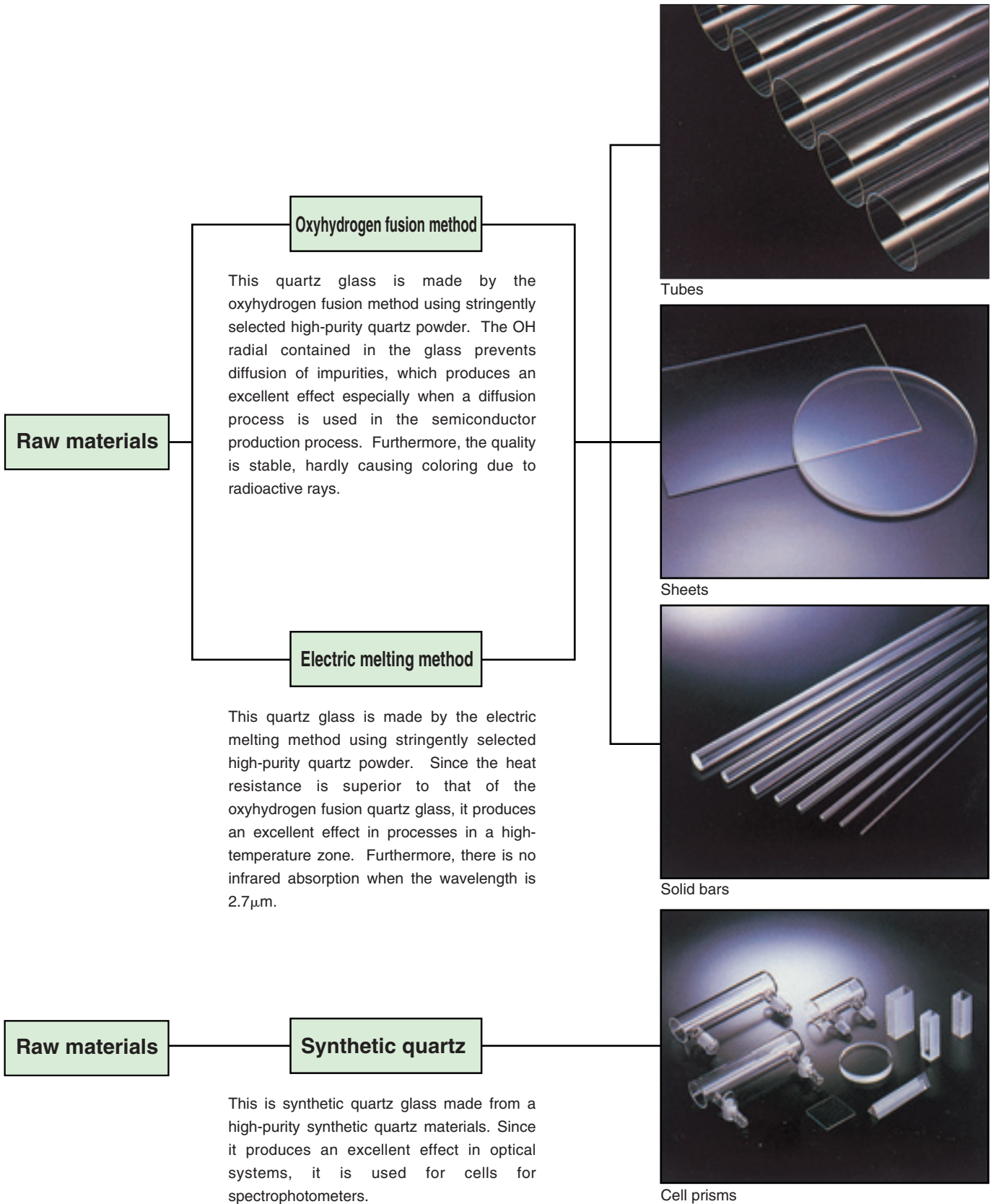


QUARTZ GLASS

MARUWA uses imported and domestic fused quartz glass bars, tubes, and sheets as raw materials for manufacturing. The ideal type for the demanded product characteristics is selected in view of quality from among several types of raw materials according to the difference of production processes. The Part No. and representative applications of our products, as well as the example of analysis of ingredients, are shown below.



QUARTZ GLASS

■ Type

Classification by production process	MARUWA QUARTZ					
			Equivalents at other material makers			
			Momentive Performance Materials Inc.	Sumitomo Metal Industries, Ltd.	TOSO Quartz Corp.	SAINT-GOBAIN
Electrically fused product	KE	FN-101	124, 214	SK-3030	HR	ST-10
Oxyhydrogen fused product	KF	FN-102	—	SK-4304	N	VITREOSIL、TSC-3
High-purity electrically fused product	KE-FS	FH-301	144, 224	SK-3036	HRP	—
High-purity oxyhydrogen fused product	KF-F1	FH-302	—	SK-4306	NP	TSC-4, -5
Electrically fused synthetic silica	—	FS-401	012	—	—	—
Flame fused synthetic silica	SY	FS-402	—	SK-1300	ES	SPECTROSIL

MARUWA is an authorized fabricator and distributor of Momentive Performance Materials Inc. Momentive Performance Materials Inc. also serves customers as the source of stable supply of materials, as well as researcher/developer of material quality and technology.

■ Example of analysis of impurities

Unit : ppm

MARUWA QUARTZ Part No.		Al	Fe	Cu	Na	K	Li	OH
KE	FN-101	14.0	0.2	<0.05	0.8	0.6	0.6	<5
KF	FN-102	15.0	0.3	<0.03	0.8	0.7	0.4	about150
KE-FS	FH-301	8.0	0.2	<0.05	<0.2	0.4	0.2	10
KF-F1	FH-302	9.0	0.2	<0.03	0.1	0.1	<0.1	150
—	FS-401	<0.2	<0.08	<0.03	<0.05	<0.05	<0.05	5
SY	FS-402	<0.04	<0.05	<0.03	<0.02	<0.02	<0.02	200

Typical analytical values by product

■ Mechanical properties

Characteristic	Transparent quartz glass	Unit
Density	2.203	g/cm ³
Compressive strength	1.1 × 10 ⁹	Pa
Tensile strength	4.8 × 10 ⁷	Pa

The various data show the measured values of quartz glass, not the specification values. The strength differs according to the welding method and shape. Contact us for details when placing an order.

■ Processed products of quartz glass

Processed products of quartz glass are made by selecting the best material from among many types of materials so as to meet the users' specifications shown in drawings and documents. Contact the nearest sales office for the details in time of delivery and specifications.

● Jig for diffusion/CVD process

Most furnaces are vertical these days. Large quartz are also offered to make wafers of 300 mm in diameter.



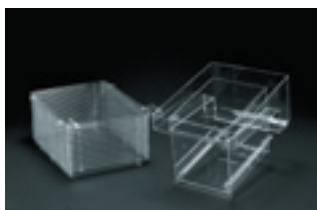
● Jig for etching/ashing process

Many wafer processing type machines are used for the etching and ashing processes. Quartz tools used in these processes are machined into various shapes.



● Washing process tool

Quartz tanks used in the washing process are indispensable for wafer processing. Large tanks are also available for processing wafers of 300 mm in diameter.



● Other processed products

Use of quartz glass processed products is not limited to the semiconductor process. They are also used for preform fabrication of optical fibers.

