

Spray Nozzle Materials

The standard and optional materials available for our nozzles are shown in the material table of each nozzle series, using the material codes listed below.

As "The Fog Engineers", we, IKEUCHI, have been developing nozzles in a variety of materials to meet the desires and applications of our customers. We were the first to develop ceramic orifice-inserted spray nozzles and succeed in marketing them throughout the world.

Listed below are the materials of nozzles and parts, and resistance characteristics of each material against common chemicals.

For more information on resistance characteristics, please see "Technical Date on Spray Nozzles" at the end of this catalog (p.120).

Metals	[Material code Material]
	S303 Stainless steel 303
	S304 Stainless steel 304
	S316 Stainless steel 316
	S316L Stainless steel 316L
	SCS13 Die-cast stainless steel equiv. to S304
	SCS14 Die-cast stainless steel equiv. to S316
	SCS16 Die-cast stainless steel equiv. to S316L
	S420J2 Hardened stainless steel 420J2
	B Brass (C3604)

Rubbers	[Material code Material]
	NBR Nitrile rubber
	FKM Fluororubber
	FEPM Tetrafluoroethylene-propylene rubber
	EPDM Ethylene-propylene rubber

Ceramics	CERJET® Ceramics
	Alumina ceramics (Alumina 92%, etc.)
	[Material code Material]
	SiC Silicon nitride bonded silicon carbide
SiSiC Sintered reaction-bonded silicon carbide	

Plastics	[Material code Material]
	PP Polypropylene
	PPS Polyphenylene sulfide
	PVC Polyvinyl chloride
	HTPVC Heat-treated polyvinyl chloride
	PTFE Polytetrafluoroethylene
	PCTFE Polychlorotrifluoroethylene
	PVDF Polyvinylidene fluoride
	ABS Acrylonitrile butadiene styrene
	FRPP Glass-fiber reinforced polypropylene
	PA Polyamide
	PE Polyethylene
	Ultra-high molecular weight polyethylene (UHMWPE)
	Polyester elastomer
	Araldite®*1 Epoxy resin (Adhesive)
	Araldite®H High-temperature epoxy resin (Adhesive)

*1) Araldite is the registered trademark of Huntsman Advanced Materials.

Oil-free treatment is available at additional cost.
Contact us for details.

Items	Chemical resistance													Heat resistance*2	
	Hydrochloric acid	Concentrated Hydrochloric acid	Sulfuric acid (35%)	Concentrated sulfuric acid	Nitric acid (35%)	Concentrated nitric acid	Acetic acid	Sodium hydroxide (caustic soda)	Aqueous ammonia	Acetone	Trichloroethylene	Ethyl alcohol	Suitable (°C)	Short-term use only (°C)	
Metals	S303	×	×	×	×	○	△	△	○	○	○	○	400	800	
	S304	×	×	×	×	○	○	○	○	○	○	○	400	800	
	S316, S316L	×	×	×	○	○	△	○	○	○	○	○	400	800	
	B	×	×	×	×	×	×	×	△	△	○	○	200	400	
Plastics	PP	○	△	○	×	×	×	○	○	○	○	△	○	80	90
	PPS	○	○	○	△	△	×	○	○	○	○	○	170	180	
	PVC	○	○	○	○	○	×	○	○	○	×	×	○	40	50
	PTFE	○	○	○	○	○	○	○	○	○	○	○	100	150	
	PVDF	○	○	○	○	○	○	○	△	○	×	○	○	80	120
	ABS	△	△	△	×	×	×	×	△	○	×	×	△	80	90
	FRPP	○	△	○	×	×	×	○	△	○	○	△	○	90	100
	PA	×	×	×	×	△	△	△	○	○	○	○	△	130	230
	UHMWPE	○	○	○	×	△	×	○	○	○	△	△	○	80	100
	Polyester elastomer	×	×	×	×	×	×	○	△	×	△	△	○	100	120
Rubbers	Araldite®	△	×	△	×	×	×	×	×	×	×	×	60	70	
	Araldite®H	○	×	○	△	×	×	○	△	○	○	○	120	140	
	NBR	×	×	×	×	×	×	○	○	○	×	△	○	90	120
	FKM	○	○	○	○	○	○	○	△	×	×	○	○	150	200
	FEPM	○	○	○	○	○	○	○	○	×	×	○	○	150	200
Ceramics*3	EPDM	○	△	○	△	×	×	○	○	○	×	○	90	120	
	CERJET® ceramics	○	○	○	○	○	○	×	○	○	○	○	700	800	
	Alumina ceramics	○	○	○	○	○	○	○	△	○	○	○	1,000	1,200	
	SiC	○	○	○	○	○	○	○	△	○	○	○	1,550	1,550	
SiSiC	○	○	○	○	○	○	○	△	○	○	○	1,350	1,350		

*2) The heat resistance (operating temperature limit) of spray nozzles varies widely depending on the operating conditions, environment, liquid sprayed, etc.

*3) Ceramic should be used at temperatures under 100°C to avoid a crack caused by heat shock.

Note: As for the spray nozzles including adhesive, please also take into account the heat/chemical resistance of the adhesive.

○... Suitable
△... Possible for short term
×... Unusable