

Arothane™ ARP-B20

► Description

Arothane™ ARP-B20 is medical grade aromatic polyether-based thermoplastic polyurethane (TPU) loaded with 20% Barium Sulfate as radiopacifier. They exhibit excellent radiopacity and can be color-matched while retaining the superior mechanical properties, excellent hydrolytic resistance, oxidative stability, chemical resistance and biocompatibility of clear grade ARP. It can be injection molded and extruded.

► Biocompatibility

Arothane™ ARP-B20 pellets passed the Hemolysis test (ISO 10993-4), MEM Elution test (ISO 10993-5), **13-weeks implantation test (ISO 10993-6)**, both intracutaneous irritation and dermal sensitization test (ISO 10993-10), acute systemic toxicity test (ISO10993-11) and *in vivo* pyrogen test (ISO 10993-11, USP <151>.)

► Storage

Arothane™ ARP-B20 TPU pellets should be stored in a cool and dry environment in their original containers until used. Storage temperature should not exceed 85°F/30°C. If only a portion of TPU pellets was used, the container with remaining TPU pellets should be tightly closed. Since aromatic-type TPU is light-sensitive, it may turn yellowish after light exposure but will not necessarily have adverse impact on the mechanical properties when stored properly.

► Products and Properties

Arothane™ ARP-B20	ASTM Test	ARP-80A-B20	ARP-85A-B20	ARP-90A-B20	ARP-93A-B20	ARP-95A-B20	ARP-60D-B20	ARP-65D-B20	ARP-69D-B20	ARP-73D-B20
Durometer (Shore hardness)	D2240	80A	85A	90A	93A	95A	59D	63D	69D	75D
Specific Gravity	D792	1.26	1.28	1.31	1.33	1.33	1.35	1.36	1.37	1.37
Flexural Modulus (psi)	D790	4,000	5,600	8,200	9,300	13,000	20,000	55,000	190,000	290,000
Ultimate Tensile (psi)	D412	3,600	4,800	5,800	5,900	5,300	5,500	5,700	5,500	5,600
Tensile Modulus at 100% Elongation (psi)	D412	670	900	1,300	1,700	2,050	3,000	3,800	4,500	NA
Tensile Modulus at 300% Elongation (psi)	D412	1,050	1,650	2,350	3,200	4,300	5,050	NA	NA	NA
Ultimate Elongation (%)	D412	720	560	530	480	420	375	265	200	80
Mold Shrinkage (mm/mm)	D955	0.007-0.014	0.007-0.014	0.006-0.012	0.006-0.010	0.006-0.010	0.004-0.008	0.004-0.008	0.004-0.006	0.004-0.006

Note : These test results are based on small samples of Arothane™ ARP-B20 TPUs and do not represent the results from larger test samples. The manufacturing parameters should be adjusted according to users' actual conditions. The mold shrinkage test (D955) was performed on Type A bar specimen molded by injection process.

► Processing Information

Arothane™ ARP-B20 pellets are hygroscopic and are **necessarily dried before processing**. Depending on the climate, the pellets absorb moisture rapidly when exposed to the atmosphere. The moisture might cause severe polymer degradation during processing and form bubbles or streaks in the molded and extruded parts. To ensure the efficient and successful processing, the moisture content in TPU pellets is recommended to be **less than 0.05%**. A dehumidifying dryer is recommended for drying Arothane™ ARP-B20 TPU. For the best drying results, the dew point of the inlet air should not be higher than -40°F /-40°C. The recommended drying conditions are listed below for a **minimum of 5 hours**.



► **Processing Information :**

Arothane™ ARP-B20	ARP-80A-B20	ARP-85A-B20	ARP-90A-B20	ARP-93A-B20	ARP-95A-B20	ARP-60D-B20	ARP-65D-B20	ARP-69D-B20	ARP-73D-B20
Recommended Drying Temperature (°F)	205-240						220-255		240-255
Recommended Drying Temperature (°C)	95-115						105-125		115-125

Note : Dry for a minimum of 5 hours at -40°F/ -40°C dew point

► **Recommended Extrusion Temperature Profile :**

Arothane™ ARP-B20	ARP-80A-B20 (°F / °C)	ARP-85A-B20 (°F / °C)	ARP-90A-B20 (°F / °C)	ARP-93A-B20 (°F / °C)	ARP-95A-B20 (°F / °C)	ARP-60D-B20 (°F / °C)	ARP-65D-B20 (°F / °C)	ARP-69D-B20 (°F / °C)	ARP-73D-B20 (°F / °C)
Zone 1	375/190	385/195	390/200	390/200	390/200	400/205	400/205	410/210	410/210
Zone 2	385/195	390/200	400/205	400/205	400/205	410/210	410/210	420/215	420/215
Zone 3	385/195	390/200	400/205	400/205	400/205	410/210	410/210	420/215	420/215
Zone 4	390/200	400/205	410/210	410/210	410/210	420/215	420/215	430/220	430/220
Adapter 5	390/200	400/205	410/210	410/210	410/210	420/215	420/215	430/220	430/220
Die	385-400/ 195-205	390-410/ 200-210	400-420/ 205-215	400-420/ 205-215	400-420/ 205-215	410-430/ 210-220	410-430/ 210-220	420-435/ 215-225	420-435/ 215-225

Screen Pack Recommendation : 50/200/100

► **Recommended Injection Molding Temperature Profile :**

Arothane™ ARP-B20	ARP-80A-B20 (°F / °C)	ARP-85A-B20 (°F / °C)	ARP-90A-B20 (°F / °C)	ARP-93A-B20 (°F / °C)	ARP-95A-B20 (°F / °C)	ARP-60D-B20 (°F / °C)	ARP-65D-B20 (°F / °C)	ARP-69D-B20 (°F / °C)	ARP-73D-B20 (°F / °C)
Rear	355/180	365/185	375/190	375/190	375/190	385/195	385/195	390/200	390/200
Front	365/185	375/190	385/195	385/195	385/195	390/200	390/200	400/205	400/205
Nozzle	375/190	385/195	390/200	390/200	390/200	400/205	400/205	410/210	410/210
Melt	410-430/ 210-220	420-435/ 215-225	430-445/ 220-230	430-445/ 220-230	430-445/ 220-230	435-455/ 225-235	435-455/ 225-235	445-465/ 230-240	445-465/ 230-240
Mold	60-85/ 15-30	60-85/ 15-30	60-85/ 15-30	70-105/ 20-40	70-105/ 20-40	70-105/ 20-40	70-105/ 20-40	75-120/ 25-50	75-120/ 25-50

