

SOFT DRINK FILLER VALVE

This part is used in the assembly of the filler valve mechanism for soft drink filling equipment. HYDEX® 4101

replaced PET, which tended to crack during the machining of the part. The problem arose due to an

extremely thin wall section into which small holes are punched.

- **Industry:** Food Processing – filling equipment
- **SIC Code:** 3565 – packaging machinery and 3556 – food products machinery
- **Ensinger-Hyde Material:** Hydex® 4101
- **Key Application Requirements:** Impact Resistance, Dimensional Stability, Chemical Resistance FDA, 3A Dairy Compliant



Material Replaced: PET

HYDEX® 4101 was selected for its improved impact resistance, which enabled it to withstand the punching process without breaking or cracking. Another reason Hydex® 4101 was utilized for this part is its excellent chemical resistance, particularly to cleaning chemicals, which are characteristically used in a food processing environment.

HYDEX® 4101 is a PBT Polyester

with an outstanding set of properties including: wear resistance, chemical resistance and toughness.

HYDEX® 4101L (Lubricated)

Is an enhanced version with improved wear, PV range and lubricity over HYDEX® 4101.



HYDEX® 4101 & HYDEX® 4101L - Physical Properties*

Test	Test Method	Units	Hydex® 4101	Hydex® 4101L	PET-P	Acetal	Delrin 100AF Blend **
Specific Gravity	ASTM D792		1.31	1.36	1.39	1.42	1.50
Tensile Strength	ASTM D638	psi	9,400	7,200	12,100	11,400	7,500
Tensile Modulus	ASTM D638	psi	425,000	380,000	479,000	450,000	392,000
Tensile Elongation	ASTM D638	%	50	40	50	50	20
Flexural Modulus	ASTM D790	psi	420,000	390,000	512,000	462,000	347,000
Notched Izod Impact	ASTM D256	ft-lb/in	0.7	0.7	0.6	1.5	0.8
Heat Deflection Temp. @ 264 psi	ASTM D648	°F	200	195	205	280	265
Max Continuous Use Temperature	UL746B	°F	221	221	212	185	185
Wear Factor @ 2000 PV	LNP EPALP-TB001	in ³ -min / ft-lb-hr	210	38	67	65	20
Dynamic Coefficient of Friction (Steel)	LNP EPALP-TB001		0.25	0.11	0.20	0.21	0.16
Static Coefficient of Friction (Steel)	LNP EPALP-TB001		0.19	0.08	0.18	0.14	0.10
LPV @ 100 fpm	LNP EPALP-TB003	psi-fpm	6,000	15,700	5,000	3,500	12,400
Water Absorption (24 hours)	ASTM D570	%	0.07	0.07	0.07	0.22	0.20
FDA Compliant			Yes	Yes	Yes	Yes	No
3A Compliant			Yes	Yes	Yes	Yes	No
USDA Compliant			Yes	Yes	Yes	Yes	No

* Typical physical property data generated from extruded-machined test specimens.

** Blended with Delrin 150SA to yield 14% PTFE in finished product.

HYDEX® = Ensinger Industries, Inc.