

High Performance Styrenics

1310: NAS[®] AND ZYLAR[®] INJECTION MOLDING PROCESSING GUIDE AND PURGING GUIDELINES

PROCESSING			NAS			ZYLAR				
Item	Properties	GRADE Units	21	30/36	90	631	530/53X	330/390	220/221	
1.	Material Drying*	°F/hrs	180/2	180/2	180/2	150/2	150/2	150/2	150/2	
		°C/hrs	82/2	82/2	82/2	65/2	65/2	65/2	65/2	
2.	Process Temp	Melt	°F	420	420	420	430	430	430	430
			°C	216	216	216	210	210	210	210
	Nozzle	°F	440	440	450	440	440	440	440	
		°C	227	227	243	227	227	227	227	
	Front	°F	420	420	420	385	385	385	385	
		°C	216	216	216	196	196	196	196	
	Middle	°F	400	400	400	375	375	375	375	
		°C	204	204	204	191	191	191	191	
	Rear	°F	370	370	370	365	365	365	365	
		°C	188	188	188	185	185	185	185	
3.	Mold Temperature	°F	130	130	130	100	100	100	100	
		°C	54	54	54	38	38	38	38	
4.	Injection Speed		Slow to Moderate	Slow to Moderate	Slow to Moderate	Moderate to Fast	Moderate to Fast	Moderate to Fast	Moderate to Fast	
5.	Back Pressure	PSI (min.)	Moderate	Moderate	Moderate	100	100	100	100	
6.	Screw Speed	RPM (min.)	60	60	60	60	60	60	60	
7.	Cushion	inches	0.125	0.125	0.125	0.125	0.125	0.125	0.125	
		mm	3	3	3	3	3	3	3	
8.	Cycle time	Wall Thickness				Cycle Time				
		inches		mm		seconds				
		0.020		0.50		10-13				
		0.040		1.00		15-19				
		0.060		1.50		20-26				
		0.080		2.00		25-33				
		0.100		2.53		30-39				
		0.120		3.00		35-45				
		0.160		4.05		45-58				
0.200		5.06		55-69						

Purging Guidelines:

For best ZYLAR trial results, a thorough purging of the molding machine prior to running ZYLAR is critical as any contamination left in the barrel, hot runner system, or mold can result in hazy parts.

The preferred purge material is NAS. The best NAS purge material for running ZYLAR 220 or 221 is NAS 21. For all other ZYLAR grades, NAS 30 is recommended for purging. If NAS is not available for purging, crystal polystyrene is an acceptable alternative and better than leaving another higher temperature material in the machine.

If the material that was being used in the molding machine prior to the ZYLAR was run at a higher barrel temperature profile (ex. Polycarbonate @ 550°F or PMMA @ 480°F), then it is best to re-heat the machine initially to those same temperatures. Then, flush the appropriate NAS material through the unit until it runs clear before dropping the temperatures to the recommended ZYLAR conditions. After cooling flush with a few pounds of ZYLAR.

If the material being used prior to the ZYLAR was run at a lower temperature, then heat the machine up to the desired settings for running ZYLAR and follow the above procedures for purging first with NAS, and then ZYLAR.

Flushing the machine until you see a clear ZYLAR purge patty is not critical. In fact at high temperatures ZYLAR can be very hazy, and the patty will hold a hot temperature for an extended period of time. Ejected molded parts may exhibit this same haziness until cooled.


For NAS trials you can follow the procedures above, excluding the use of any ZYLAR materials.

Finally, if present, any tiny streaks of white, colors, or haze can be an indication of contamination in the machine. If this occurs then continue to purge the system.

Drying:

Drying is not always necessary. If the molded parts are very large or the Plant is located in a very humid region, then you may need to dry the material according to the instructions on the front of this technical bulletin. This is only needed for surface drying of the material, as it will not absorb large amounts of water. The effects of not drying under the above conditions are strictly esthetic, and will not affect the physical properties of the final parts.

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