



As the 900 Global and AMF product lines become more diversified and complete with new introductions it is important for the pro-shop and bowlers to grasp the different aspects of the factory surface texture applied to each ball. It has become a common question in today's industry as to how a bowling ball can be resurfaced back to the original box finish. The correct surface texture can be the difference between matching up to a lane condition and struggling through a set.

USBC released a ball motion study signifying the important of coverstock surface texture. According to the valid and accurate study, Surface Roughness (Ra & RS) and On-Lane Friction were the most important factors in determining overall ball motion on the lane. The USBC study focused on changes in actual shell chemistry formulations to create a different surface texture. For complete details on the study go to [www.bowl.com](http://www.bowl.com).

In addition to chemical alterations another physical means to change the surface roughness and friction is done through the manufacturing process. In the manufacturing area there is a complex number of machines and steps that are used and followed to also manipulate different surface characteristics. During the finishing process 900 Global/AMF shells are first cut down using a specially designed shell lathe and then cleaned and subject to sanding machines. These sanding machines use both orbital 3M Trizact sanding discs and various Abralon pads. It is the combination of urethane, equipment used, and process techniques that allow a smooth transition between surface sanding results.

The exact replicate formulas for 900 Global finishing compounds are proprietary information. However, 900 Global compounds are non petroleum based and consist of two types. A majority of the "Brown" is most similar to a 800-1000 grit compound. The "White" is most similar to a 1200-1500 grit compound. The exact formula along with 900 Global finishing processes on the production floor all combine to yield the final surface texture and finish of the bowling ball. Also, due to the slurry portion and final chemical makeup of both compounds, the easiest and most effective final way for a pro-shop to reproduce the finish on a ball-spinner is apply a non-petroleum based ~ 1500 grit finishing compound in addition to the lower grit compounds. These products can be attained through several market sources.

In polishing a bowling ball, a smooth shiny surface is created via a chemical action induced by contact pressure and heat. On a ball, the smooth and shiny surface is visible by specular (perfect mirror-like reflection) and diffuse (reflection from an un-even or granular surface) reflection of light. The resulting surface texture can reduce the amount of manufactured surface roughness of the ball. Just as in the case of the compounds, the replicate formula for the polish is also proprietary. However, it is most similar to a 2000 grit polish.

Although it is not feasible to exactly reproduce the factory finish of a bowling ball, the following chart displays approved surface processes and finishes that have or are currently being used at the 900 Global facility. The steps and information can be used to resurface a bowling ball to a similar “box” finish state. Micron conversions to grit are also listed in the chart and are provided by 3M.

Global Manufacturing Surface Texture/Sanding Process Parameters										
Step Sequence	Product	Process	"Box" Finish							
			Polished	4000 Abralon	2000 Abralon	1000 Abralon	NEAT (N)	NEAT (E)	NEAT (A)	NEAT (T)
1	Orbital Sanding Pads (25 - 40 seconds) 3M Trizact	60micron ~ 220 Grit				x	x	x		x
2		50micron ~ 240 Grit	xx	x	x	x	x		x	
3		40micron ~ 280 Grit	x			x	x	x		
4		30micron ~ 340 Grit	x	x	x	x	xx		x	x
5		20micron ~ 500 Grit		x	x			x	x	x
6		10micron ~ 1000 Grit			x					
7		5micron ~ 1500 Grit		x					x	x
8	Abralon (25 seconds)	1000 Abralon				x				
		2000 Abralon			x					
		4000 Abralon		x						
9	NEAT (40 seconds)	N					x			
10		E					xx			
11		A							x	
12		T								xx
13	~ 800-1000 Grit (220 Mesh)	"Brown" Compound	xx							
14	~ 1200-1500 Grit (325 Mesh)	"White" Compound	x							
15	Buffing Wheel/Dry Towel/Ball Spinner	Dry Buff #1	x	x	x					
16	2000 Grit Polish	Wax/Polish	x							
17	Buffing Wheel/Dry Towel/Ball Spinner	Dry Buff #2	x	x	x	x				x

x = single pass                      xx = double pass

Using the preceding information, pro-shops and bowlers alike are now able to work towards resurfacing a bowling ball to its “box” finish. Although each bowling ball does have a particular “out of the box” finish, typical coverstocks allow for ease of manipulation in changing between surfaces to fine tune the reaction on the lane and best match up an individuals game and lane condition.

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