

REFRACTORY **EXPENDABLES** FOR GLASS



HWI
A MEMBER
OF CALDERYS

HWI

Every day around the world, HarbisonWalker International's (HWI) people and products stand up to the challenges and pressures of every job. And for over 150 years, we've been the gold standard for refractory products. We deliver one of the industry's widest, deepest lines of solutions. Our world-class products perform to the highest degree. And by bringing intensity, reliability, and passion to work every day, we're able to provide superior value to our customers and their businesses. Get to know the experts who anticipate, respond, and deliver like no one else. We're nearly 1,400 people with one goal: to keep your business moving forward.

(HWI) provides the largest refractory manufacturing capacity to the glass industry in North America.

Over 90 years of research and development in the glass market have enabled us to pioneer innovative glass solutions.

Our dedicated glass application specialists build custom solutions, troubleshoot issues, develop technical papers, conduct refractories training, and offer a range of consultation services.

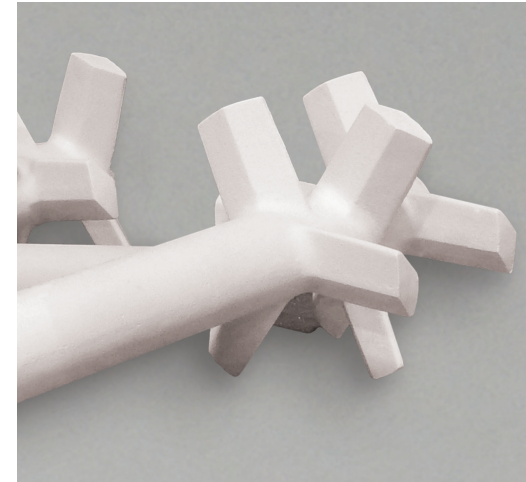
We can also provide priority access to our Advanced Technology and Research Center (ATRC) testing services. Our role can be customized to your needs. We can step in as simply a product supplier, or we can provide support all the way through installation. You decide.

- Strategically located distribution centers (DC) across North America
- Inventory control to improve operations
- Dedicated 24/7/365 support

APPLICATIONS:

- Bushing blocks
- Mantle blocks
- Thermocouple blocks
- Orifice rings
- Sleeves
- Tubes
- Stirrers
- Plungers
- Spouts
- Spout covers
- Burner blocks

PRODUCTS THAT PASS THE TEST. EVERY DAY.



Have high expectations for your refractory products? We do too. Our products like TAMAX™, TAYLOR ZIRCON™ and ZIRMUL™ set benchmarks for the industry.

The competitive edge you're looking for starts with us—and with your dedicated HWI application specialist. They're experts who will understand every inch of your process and who will work intensely to optimize your refractory performance.

With the right products identified, combined with our strategically-placed GSC locations, we deliver the products you need, when you need them. And we stock our most popular products so that you can have them the same day or the next day. Let us work with you to reduce your potential for downtime.

If you want to save time, money, and improve productivity, talk to your HWI sales representative today. Don't have one? Call 1-800-492-8349.

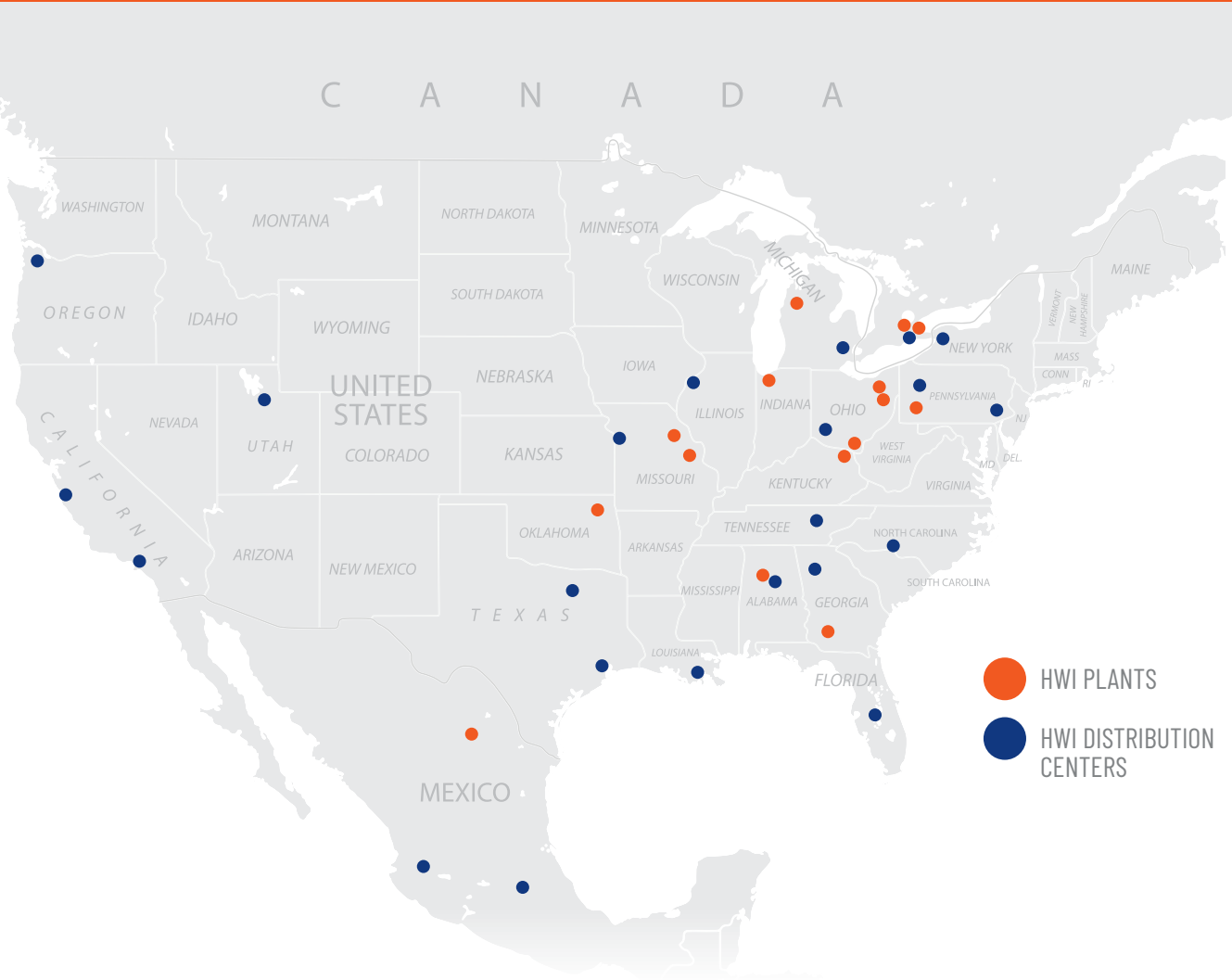
WE BRING 50 YEARS OF EXPERTISE IN EXPENDABLES AS WELL AS AN ADVANCED, NEW PRODUCT LINE



EXPENDABLE PRODUCTS

PRODUCT	CHEMICAL COMPOSITION, WT. %						HWI SCF BRANDS ARE FINE-GRAINED MIXES.		
	Al ₂ O ₃	ZrO ₂	SiO ₂	Fe ₂ O ₃	TiO ₂	Other	Bulk Density lb/ft ³ (g/cm ³)	Apparent Porosity (%)	CMOR lb/in ² (N/mm ²)
TAMAX™ SC	83.0	-	15.5	0.4	0.6	0.5	154 (2.47)	23.0	1500 (10.3)
TAMAX™ SCF	80.5	-	18.0	0.4	0.7	0.4	150 (2.40)	23.0	2500 (17.2)
TAMAX™ 70 SC	71.3	-	25.0	1.1	2.0	0.6	162 (2.60)	23.0	1600 (11.0)
TAYLOR ZIRCON™ VC	-	65.0	34.0	-	-	1.0	230 (3.68)	17.6	3200 (22.1)
ZIRMUL™ 11 SC	66.2	11.5	20.6	0.6	1.1	-	172 (2.75)	17.0	1700 (11.7)
ZIRMUL™ 20 SC	66.3	19.8	13.6	0.1	0.2	-	187 (3.00)	19.0	1950 (13.4)
ZIRMUL™ 30 SC	49.5	30.9	19.1	0.2	0.3	-	190 (3.05)	19.0	2150 (14.8)

HWI PLANTS AND DC LOCATIONS



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