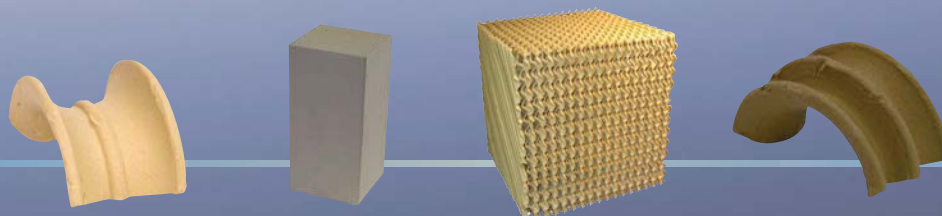


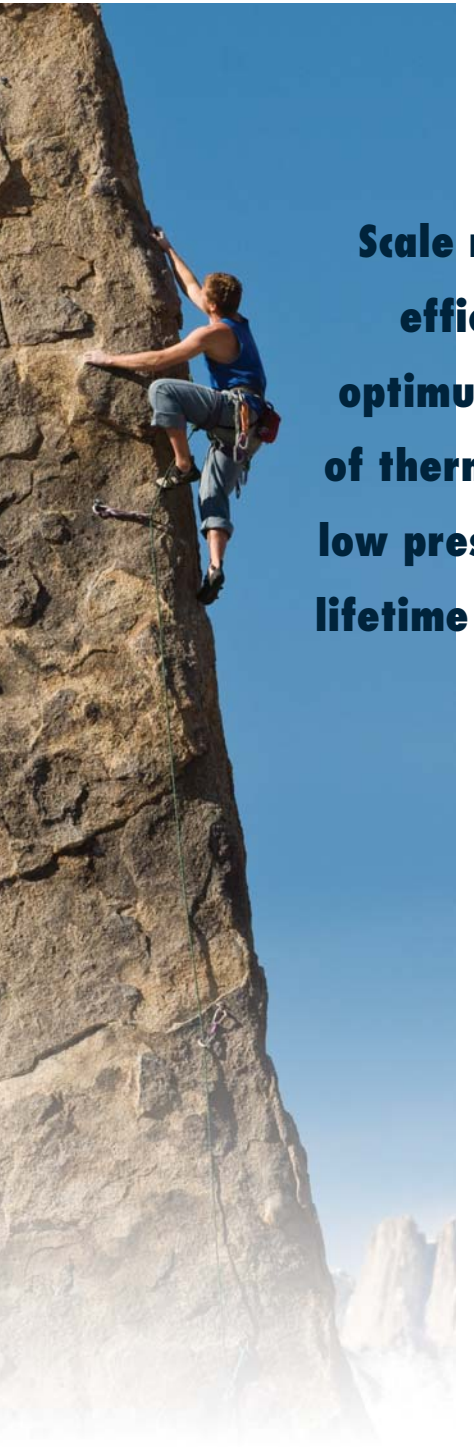
**Explore the most
complete range of
environmental heat
transfer media
products and services**




A Koch Chemical Technology Group, LLC Company

KOCH KNIGHT LLC

The Media Matters™



Scale new heights of efficiency with the optimum combination of thermal properties, low pressure drop and lifetime operating cost



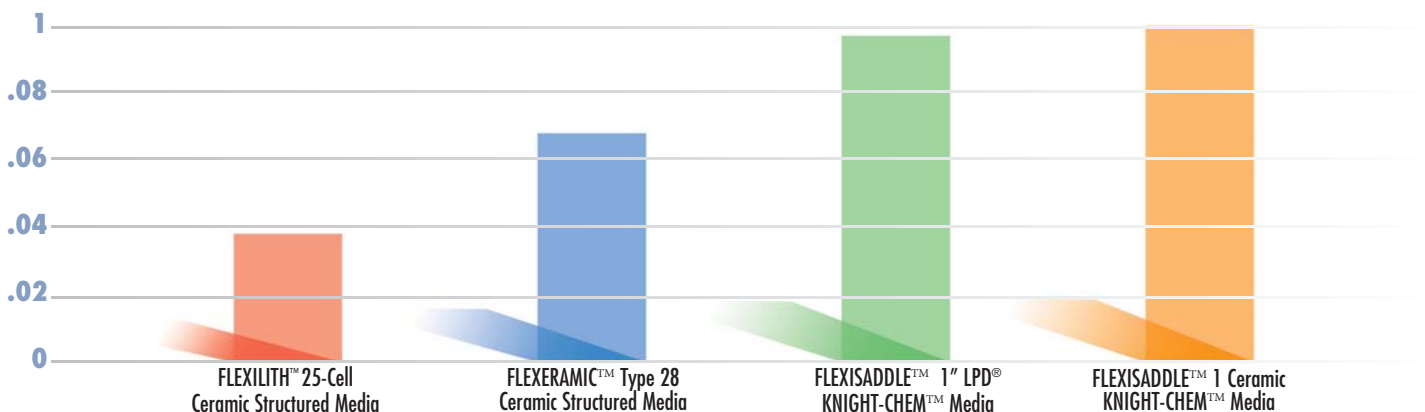
When you need to reach the highest levels of efficiency and value for your Thermal Oxidation equipment, the proper ceramic heat transfer media is a key component, and Koch Knight LLC is the natural place to turn.

The ceramic heritage of Koch Knight LLC goes all the way back to the beginning of the last century, when Maurice A. Knight first produced KNIGHT-WARE® chemical ceramic to combat corrosion in the U.S. chemical industry.

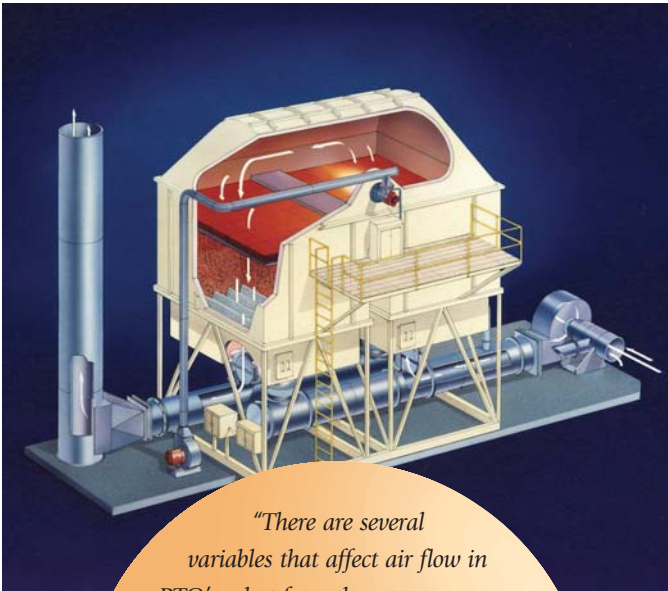
Today, as acknowledged experts in ceramic manufacturing, Koch Knight LLC continues to be a leading innovator in the field of ceramic environmental heat transfer media.

Whether your facility's RTO problem is pressure drop, energy usage, alkali attack, particulate accumulation, or a combination of these, Koch Knight LLC has an array of products designed to meet the toughest requirements and deliver thermal efficiency at the lowest cost.

Relative Total Operating Cost per Year
(200-250 scfm/ft²) at 8 ft (2.4m) bed depth



Find the solution that meets your unique RTO heat transfer needs



"There are several variables that affect air flow in RTO's... but from the common-sense, day-to-day operation and maintenance... we are convinced that the FLEXERAMIC™ Structured Media Ceramic Packing are superior to the old-style blocks. We went from cleaning our RTO cells about every three weeks to about every four months."

**Director of By-product
Services - JEA**

Regenerative thermal oxidizers (RTOs) and other types of thermal oxidation systems have proven to be a highly effective and energy-efficient method of abating volatile organic compounds (VOCs) and other pollutants emitted by various industry processes. However, careful attention should be given to selecting the shape and material of the heat exchange media to mitigate potential problems with particulate matter and to ensure reliable, economical and safe operation of these systems.

Koch Knight is the leader in providing all product choices in heat transfer ceramic media for RTO systems, with a portfolio of choices designed to work with all budgets and technical requirements.

From the low purchasing cost ceramic random heat transfer media to the extremely efficient gas distributing FLEXERAMIC™ Ceramic Structured Media to the highest thermally efficient FLEXILITH™ HA Ceramic Structured Media.

Offering a complete range of products, a complete range of choices, always customized to fit the customers needs and requirements.

Koch Knight... the one place where we know that

The Media Matters™...

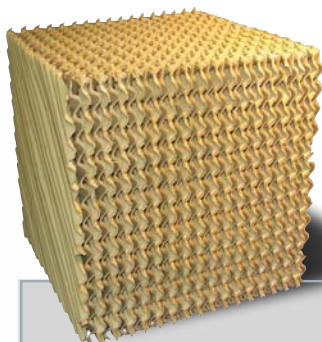
Material Options for Media Products

Properties	KNIGHT-CHEM®	GR™	HA™
Density	140 lb/ft ³ 2240kg/m ³	160 lb/ft ³ 2550kg/m ³	168 lb/ft ³ 2700kg/m ³
Alkali/Resistance	Good	Excellent	Good



FLEXERAMIC® Ceramic Structured Media

The geometric construction of FLEXERAMIC® structured packing greatly reduces channeling of vapors in the RTO bed, eliminating dead spots. This gas distribution ability can yield benefits whether the bed is totally filled with FLEXERAMIC media, or just a couple of feet are placed at the bottom below another type of media. The corrugated ceramic sheets are vertically oriented during installation in the RTO bed, eliminating horizontal surfaces which create resistance to vapor flow.

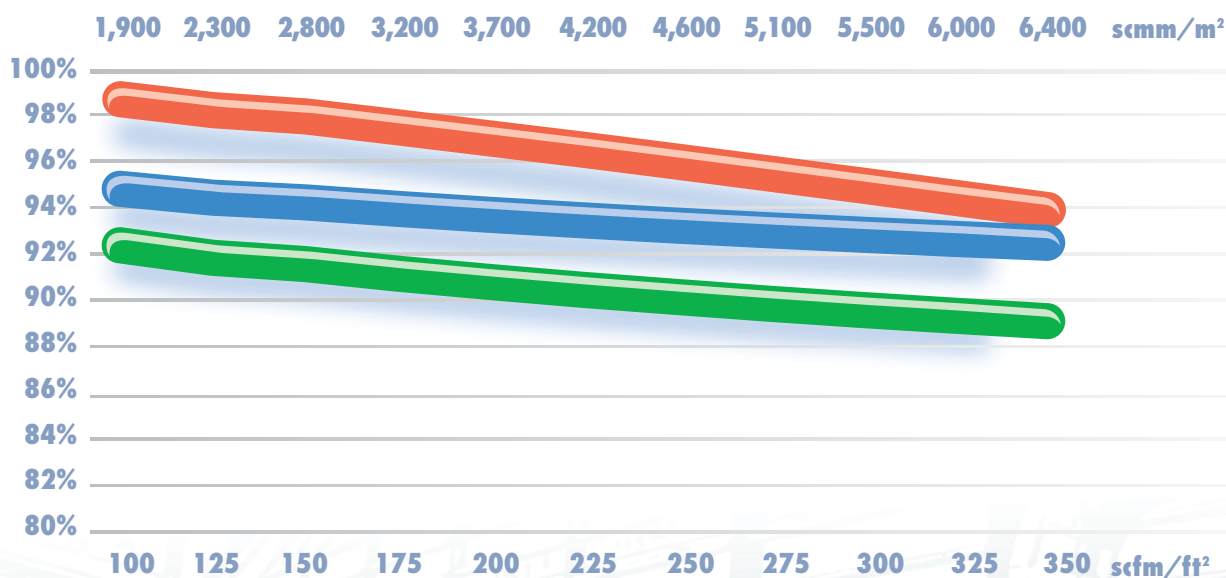


Why FLEXERAMIC Media for your RTO Application?

- Reduce bed depth
- Minimize plugging
- Maximize gas distribution in the bed
- Increase capacity in the unit
- Reduce fuel costs
- About half the pressure drop of random media
- Utilize entire bed instead of just a fraction

	FLEXERAMIC™ Type 28	FLEXERAMIC™ Type 48
Density	35 lb/ft³ 560 kg/m³	30 lb/ft³ 478 kg/m³
Surface Area	98 ft²/ft³ 320 m²/m³	63 ft²/ft³ 208 m²/m³
Void Space	77%	79%

Heat Recovery Efficiency at 8 ft (2.4m) Bed Depth



FLEXILITH™ 25-Cell Ceramic Structured Media

FLEXERAMIC™ Type 28 Ceramic Structured Media

FLEXISADDLE™ 1" LPD® KNIGHT-CHEM™ Media
FLEXISADDLE™ 1" KNIGHT-CHEM™ Media



FLEXILITH™ HA Ceramic Structured Media

FLEXILITH™ HA (High Alumina) Ceramic structured media couples the high heat capacity and low pressure drop of a honeycomb monolith shape with the chemical stability of the high alumina composition, making it particularly suitable for use in RTO / RCO applications. It is very dense and displays excellent resistance to thermal shock damage. When FLEXILITH™ HA Ceramic Structured Media is used in applications with fairly

clean emission streams or with effective particulate removal equipment upstream (i.e., a WESP), it is easy and cost efficient to operate and maintain. A bed of this media works even better if two layers of FLEXERAMIC structured media are installed at the cold face of the RTO, underneath the FLEXILITH™ bed, resulting in greatly improved gas flow and reduced channeling.



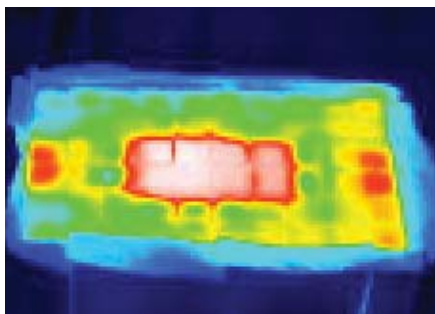
	FLEXILITH™ 25-cell	FLEXILITH™ 32-cell	FLEXILITH™ 40-cell
Density	46 lb/ft ³ 730 kg/m ³	48 lb/ft ³ 765 kg/m ³	52 lb/ft ³ 830 kg/m ³
Surface Area	163 ft ² /ft ³ 553 m ² /m ³	205 ft ² /ft ³ 671 m ² /m ³	248 ft ² /ft ³ 813 m ² /m ³
Void Space	64%	63%	60%

Gas Heat Distribution

Hot air was passed under pressure through three five foot deep beds of media in Koch Knight's test apparatus. Thermal imaging of the top of these beds dramatically proves the distribution effect of the 45 degree orientation of the channels in the ceramic blocks. The photos shown here are of beds of FLEXILITH blocks alone, FLEXERAMIC blocks alone, and a mixed bed with two feet of FLEXERAMIC media on the bottom bed (cold face) and three feet of monolith on top. When the heated air was introduced in the center bottom of the FLEXILITH, only the center of the bed fully absorbed heat. The bed of all FLEXERAMIC media became heated uniformly across its cross section, so that the entire volume of the bed can be utilized for heat transfer. The mixed bed photos shows the dramatic difference when two layers of FLEXERAMIC media are placed at the cold face of a FLEXILITH bed.

FLEXILITH™ 25-Cell

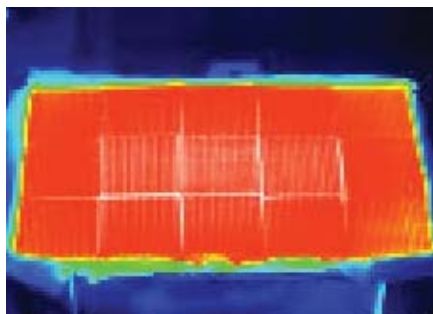
Ceramic Structured Media



FLEXILITH™ HA 25-Cell Ceramic Structured Media 5 ft bed depth

FLEXERAMIC™

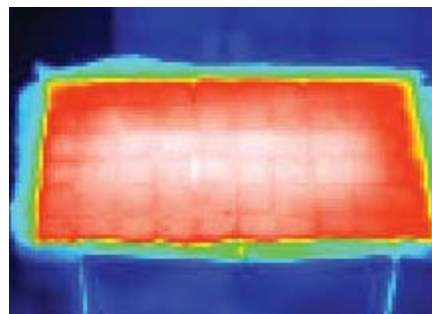
Ceramic Structured Media



FLEXERAMIC™ Type 28 Ceramic Structured Media 5 ft bed depth

FLEXERAMIC and FLEXILITH™

Mixed Bed



Mixed bed:
Bottom 2 ft are with FLEXERAMIC™ Type 28 Ceramic Structured Packing
Top 3 ft layers are FLEXILITH™ HA 25-Cell Ceramic Structured Media



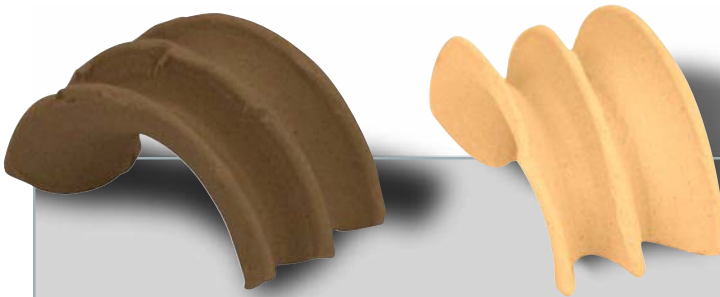
FLEXISADDLE® 1" Ceramic Media

There have been over 550 installations of FLEXISADDLE Random Packing for RTO applications. Koch Knight utilizes state-of-the-art quality and process controls to ensure that FLEXISADDLE products are the premier saddles in the industry.

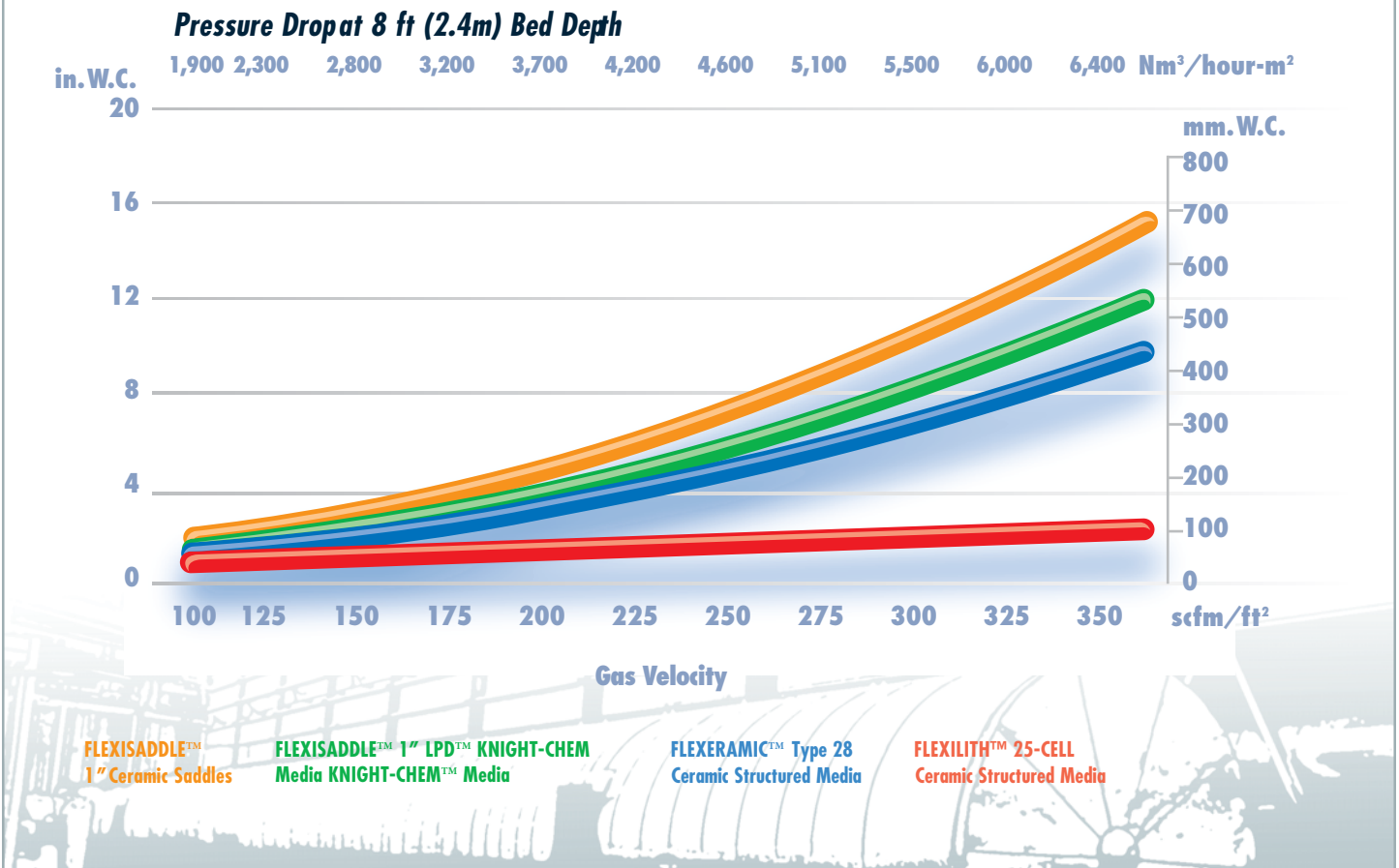
The high open area and aerodynamic design of our newest innovation, LPD® (Low Pressure Drop) 1" FLEXISADDLE™ media, results in over 20% lower pressure drop compared to standard saddle media, with the same heat transfer

efficiency. Pressure drop savings offer the RTO designer lower fan costs or smaller units. For the end user or RTO operator, a retrofit with LPD FLEXISADDLE media can provide additional capacity or electrical savings with their current fan configuration. The three rib design maintains heat transfer capability through more efficient use of the media's surface area.

The LPD GR composition has been engineered to resist even the most intense forms of alkali attack, giving the user longer life and higher resistance to thermal cycling damage than other materials.



	KNIGHT-CHEM™ 1" LPD™	FLEXISADDLE™ 1" LPD® GR™	FLEXISADDLE™ HPC™ 1" Media	KNIGHT-CHEM™ FLEXISADDLE™ 1" Media
Density	40 lb/ft³ 640 kg/m³	46 lb/ft³ 735 kg/m³	38 lb/ft³ 600 kg/m³	48 lb/ft³ 760 kg/m³
Surface Area	68 ft²/ft³ 220 m²/m³	68 ft²/ft³ 220 m²/m³	72 ft²/ft³ 235 m²/m³	72 ft²/ft³ 235 m²/m³
Void Space	73%	73%	70%	70%





Koch Knight LLC is a leader in Acid Proof Solutions. With capabilities in Construction, Engineering and Services working with state of the art ceramics and plastic materials, Koch Knight is the true one stop shop for all the needs of even the most demanding corrosion solutions.

Koch Knight provides responsive, customer-focused solutions. Our products and services are available worldwide through our global network of manufacturing and outsourcing ceramic and plastic facilities. We are there when you need us. Whether a revamp or new construction, from start to finish, Koch Knight will assist you at every step to ensure speedy completion and successful results.



Koch Knight is part of the Koch Chemical Technology Group, LLC, a diverse group of companies serving the refining, chemical and petrochemical industries.

Other Koch Knight services and products include:

- Complete acid resistant brick lining systems
- Brick Lining System Design and Installation Services
- Plastic Tower Packing and Media
- Dualam Towers
- Ceramic and Plastic Distributors, packing Supports and other Internals
- Complete Sulfuric Acid Towers and Pump Tank Systems
- Complete hydrometallurgical pressure vessels, such as autoclaves, flash vessel tanks, brick lined cyclones, brick lined heaters, attack tanks, and many others.
- Hot Quench Columns and Brick Lined Vessels for the Chemical Processing Industry
- Titanium Dioxide Brick Lined Tanks and Reactors and many others

For more information:

Visit our website at: www.kochknight.com

Or email us at: info@kochknight.com

Product Selection Matrix	Thermal Shock			Alkali Resistance			Acid Resistance				Porosity			
Ceramic Saddles														
KNIGHT-CHEM™ LPD™ Saddles														
GR™ LPD™ Saddles														
KNIGHT-WARE™ FLEXERAMIC™ Structured Packing														
CR-Cordierite FLEXILITH™ Structured Media														
HA-High Alumina FLEXILITH™ Structured Media														
HPC Ceramic Random Media														

Bar length reflects the total relative capacity of the product.

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