UDICELL and EXACTFLO Filters

Product Line Overview

ASKCHEMICALS

Improve Performance via Cleaner Metal

The ASK Chemicals name has represented superior quality, excellence and innovation within the metal filtration market for over three decades. Our engineers developed fully sintered reticulated ceramics in the early 1980's and ever since metal casters have enjoyed new dimensions in filtration for higher temperature alloys worldwide.

ASK Chemicals offers a complete filter-portfolio consisting of traditional-formulations and custom designs to accommodate any metal application requirement. With in-house production we guarantee customer satisfaction and constant innovation: custom shapes, edge coating and breakthrough filtration units for large steel and iron castings.

At ASK Chemicals we ultimately believe in offering our customers more than great products. In addition, we place equal importance on services in order to maximize customer value. This holistic approach includes three industry leading value-added services: Technical Services, Design Services, Research and Development. Enhancing your profitability is our primary goal. Our services, integrated seamlessly alongside our filtration offerings, will help ensure we meet this goal.

- Developed fully sintered reticulated ceramics (legacy)
- Over 30 years of innovation
- Highly conrolled in-house production
- Custom solutions
- Holistic value-added services

Basic Information

Filter Families

UDICELL

Top-quality filters for steel and iron casting, non-ferrous metals and high temperature alloys and / or large and heavy castings.

EXACTFLO

Cost-effective filters for removing impurities in ferrous and non-ferrous metals.

Exactfill housing systems

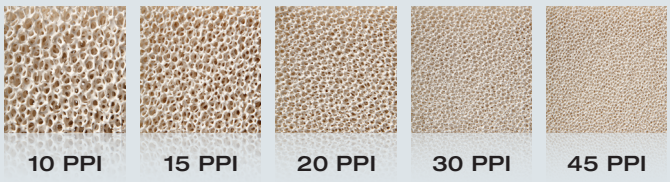
Filter housing systems with UDICELL filters offering optimum filtration efficiency for heavy steel and iron castings

Filter material selection

Recommended metal type → **StL**

Recommended pore sizes → **10 – 15**

Pore size selection



	Filter material			
Metal type	**Zirconia**	**Alumina**	**Silicon carbide**	**Carbon bonded**
Steel **(StL)**	■			■
Iron **(GI, DI)**	■		■	■
Aluminum **(Al)**		■	■	
Brass / Bronze / Copper **(BBC)**	■	■	■	
Superalloys **(Ni, Co)**	■	■		

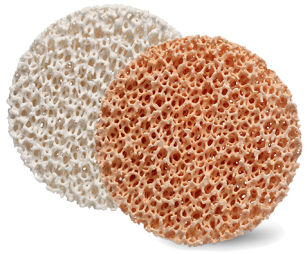
	Pore size				
Metal type	**10 ppi**	**15 ppi**	**20 ppi**	**30 ppi**	**45 ppi**
Steel **(StL)**	■	■			
Ductile iron **(DI)**	■	■			
Gray iron **(GI)**			■	■	■
Aluminum **(Al)**	■	■	■	■	
Brass / Bronze / Copper **(BBC)**	■	■	■	■	

Customer-specific solutions and availability of individual products

Besides the solutions referred to in this brochure, ASK Chemicals also offers customer-specific solutions that take accoount of your individual processes. The availability of individual products may be regionally restricted. Please contact us to discuss your specific requirements.

UDICELL Zirconia Filters

Maximum chemical, thermal and mechanical stability



UDICELL filters are fully sintered reticulated ceramic filters made of partially stabilized zirconia (PSZ). These filters are especially suited to use in steel and iron foundries. UDICELL filters provide optimum consistency and performance under maximum stress. UDICELL filters are a cost-effective means of reducing castings defects. These filters are manufactured to a size of currently Ø 300 mm.

Benefits: PSZM (pure white)

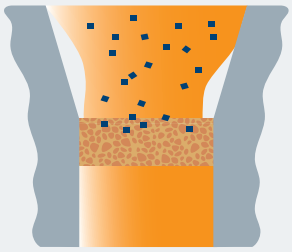
- Highest chemical purity
- Open pore structure
- For extreme temperatures and pressure loads

Benefits: PSZT (buff)

- High thermal efficiency
- Open pore structure
- For high demands

Zirconia for extreme stresses

UDICELL foam ceramic filters provide superior thermo-shock resilience as well as resistance to chemical and mechanical stress during pouring. In fact, UDICELL zirconia filters are capable of withstanding temperatures greater than 1,700 °C (3,092 °F). This capability achieves optimum filtration of metals in the most extreme conditions.

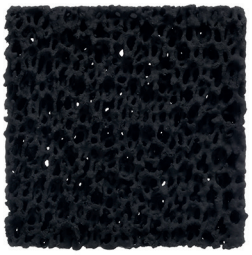


Filter size		Ledge size		Flow rate		Capacity			
						kg		lb	
inch	mm	inch	mm	kg/sec	lb/sec	LCLA	SS	LCLA	SS
2 OD x 0.75	50 OD x 20	0.20	5	3	7	30	44	66	97
3 OD x 1.00	75 OD x 25	0.30	7	6	13	68	100	150	220
4 OD x 1.00	100 OD x 25	0.35	9	13	29	122	177	268	389
5 OD x 1.25	125 OD x 30	0.45	11	19	42	190	277	418	609
6 OD x 1.25	150 OD x 30	0.50	12	28	62	274	398	603	876
7 OD x 1.25	175 OD x 30	0.55	14	42	92	373	542	821	1,192
8 OD x 1.50	200 OD x 38	0.65	16	50	110	487	708	1,071	1,558
2 x 2 x 0.75	50 x 50 x 20	0.30	5	4	9	39	56	86	123
3 x 3 x 1.00	75 x 75 x 25	0.30	7	8	18	87	127	191	279
4 x 4 x 1.00	100 x 100 x 25	0.35	9	14	31	155	225	341	495
5 x 5 x 1.25	125 x 125 x 30	0.45	11	24	53	242	335	532	737
6 x 6 x 1.25	150 x 150 x 30	0.50	12	36	79	349	507	768	1,115
7 x 7 x 1.25	175 x 175 x 30	0.55	14	53	117	475	690	1,045	1,518
8 x 8 x 1.50	200 x 200 x 38	0.65	16	64	141	620	902	1,364	1,984

SS = stainless steel, OD = Outer diameter, LCLA = Low Carbon Low Alloy Steel
The details supplied should be regarded as reference values and not warranted values. Other sizes and shapes available on request.

UDICELL
Carbon Bonded Filters

The ideal filter for temperature-critical applications



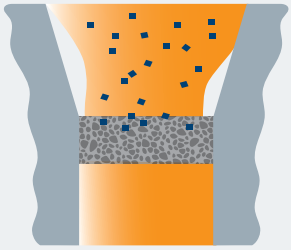
ASK Chemicals carbon bonded filters are used for ferrous alloys where a filter with a low heat absorption capacity (heat loss from the melt) is required. The carbon bonded filters provide minimum loss of heat with filtration effectiveness. The low percentage of carbon minimizes any possible carbon pick-up. UDICELL carbon bonded filters can be engineered in a variety of shapes, with a maximum dimension of Ø 300 mm (approx 12").

Benefits

- Ideal for temperature-critical applications
- Efficient filtration
- Available in round & square design

Stop waiting: don't give heat loss a chance!

Blocking filters due to heat loss from the melt difficulties are worse than annoying. Too much energy is removed from the molten metal, with the metal remaining, as it were, stuck in the filter. With UDICELL carbon bonded filters, their material composition and open pore structure means that you bypass this problem. The result is fast, even flow, alongside more predictable mold-filling times.



Filter size		Ledge size		Capacity	
inch	mm	inch	mm	kg/LCLA	lb/LCLA
2 OD x 0.75	50 OD x 20	0.20	5	39	86
3 OD x 1.00	75 OD x 25	0.30	7	88	194
4 OD x 1.00	100 OD x 25	0.35	9	159	349
5 OD x 1.25	125 OD x 30	0.45	11	247	543
6 OD x 1.25	150 OD x 30	0.50	12	356	784
2 x 2 x 0.75	50 x 50 x 20	0.20	5	51	112
3 x 3 x 1.00	75 x 75 x 25	0.30	7	113	249
4 x 4 x 1.00	100 x 100 x 25	0.35	9	202	443
5 x 5 x 1.25	125 x 125 x 30	0.45	11	315	692
6 x 6 x 1.25	150 x 150 x 30	0.50	12	454	998

LCLA = Low Carbon Low Alloy Steel, OD = Outer diameter
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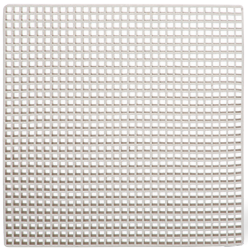
For further details please refer to the technical datasheet.

EXACTFLO
Pressed or Extruded Filters

Pressed and extruded filters for improved quality



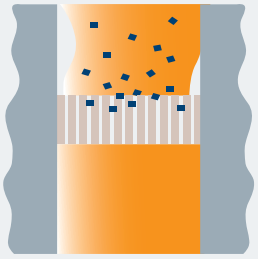
EXACTFLO pressed or extruded filters are ideally suited for both gray and ductile iron, as well as non-ferrous metals. EXACTFLO filters have a highly repeatable cell structure to ensure a constant molten metal flow. They exhibit both chemical inertness and mechanical strength while providing a thermal robustness with alloys up to 1,450 °C (2,650 °F), or up to 1,700 °C (3,092 °F) in the special version designed for steel (pressed version).

Benefits

- Engineered to ensure consistency
- Non-abrasive mould insertion
- Reduces trapped gas
- Available with round and square pores

Benefits of pressed or extruded filters from ASK Chemicals

EXACTFLO pressed and extruded filters offer the user dimensional accuracy and controlled metal flow along with excellent strength properties & thermal resistance.

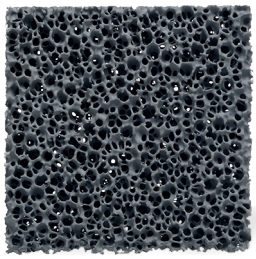


Filter size		Holes		Flow rate				Capacity			
inch	mm	size	qty	kg/sec		lb/sec		kg		lb	
				DI	GI	DI	GI	DI	GI	DI	GI
1.5x1.5x0.5	37x37x12.5	100 csi		1.5	2.9	3.2	6.4	23	46	51	102
1.5x1.5x0.5	37x37x12.5	2.3 mm	161	1.6	3.3	3.6	7.2	21	42	46	92
1.5x1.5x0.5	37x37x12.5	300 csi		N/A	1.9	N/A	4.2	N/A	35	N/A	76
2x2x0.5	50x50x12.5	100 csi		2.6	5.3	5.8	11.6	43	86	95	190
2x2x0.5	50x50x12.5	2.3 mm	294	3.0	6.0	6.6	13.2	38	76	84	168
2x2x0.5	50x50x12.5	300 csi		N/A	3.4	N/A	7.5	N/A	65	N/A	142
2.17x2.17x0.5	55x55x12.5	100 csi		3.2	6.4	7.0	14.0	52	104	114	228
2.17x2.17x0.5	55x55x12.5	2.3 mm	367	3.8	7.5	8.3	16.6	47	94	103	206
2.17x2.17x0.5	55x55x12.5	300 csi		N/A	4.1	N/A	9.1	N/A	78	N/A	172
2.6x2.6x0.5	66x66x12.5	100 csi		4.6	9.2	10.1	20.2	74	148	162	324
2.6x2.6x0.5	66x66x12.5	2.3 mm	537	5.5	11.0	12.1	24.2	69	138	152	304
2.6x2.6x0.5	66x66x12.5	300 csi		N/A	6.0	N/A	13.1	N/A	111	N/A	244
2.95x2.95x0.5	75x75x12.5	100 csi		6.0	11.9	13.1	26.2	96	192	211	422
2.95x2.95x0.5	75x75x12.5	2.5 mm	562	6.3	12.5	13.8	27.6	99	198	218	436
2.95x2.95x0.5	75x75x12.5	300 csi		N/A	7.7	N/A	17.0	N/A	144	N/A	316
3.2x3.2x0.5	81x81x12.5	100 csi		7.0	13.9	15.3	30.6	112	224	246	492
3.2x3.2x0.5	81x81x12.5	2.5 mm	710	7.9	15.8	17.4	34.8	125	250	275	550
3.2x3.2x0.5	81x81x12.5	300 csi		N/A	9.0	N/A	19.9	N/A	168	N/A	370

csi = cells per square inch
The details supplied should be regarded as reference values and not warranted values. Other sizes and shapes available on request.

EXACTFLO Silicon Carbide Filters

Silicon carbide filters for increased cleanliness



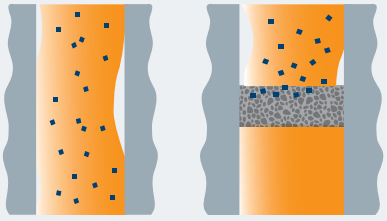
EXACTFLO SiC filters are ideally suited to both gray and ductile iron, as well as non-ferrous metals. EXACTFLO SiC filters are characterized by their highly porous, open structure. This structure results in the efficient removal of oxide inclusions. EXACTFLO SiC filters exhibit chemical inertness and mechanical strength while providing thermal robustness up to 1,500 °C (2,732 °F).

Benefits

- Reduction in non-ferrous inclusions
- Decrease in turbulence
- Improvement in casting machinability

Reduction of turbulence in the pouring system

EXACTFLO silicon carbide filters provide little turbulence during metal pouring. This has several advantages including the assurance of less gas absorption (i.e. oxidation). This results in lower rejection rates, less reworking, improved surfaces and increased cost effectiveness.



No filter SiC filter

Filter size		Ledge size		Flow rate		Capacity			
						kg		lb	
inch	mm	inch	mm	kg/sec	lb/sec	DI	GI	DI	GI
2 OD x 0.75	50 OD x 22	0.20	5	3	7	39	78	86	172
3 OD x 0.75	75 OD x 22	0.30	7	6	13	88	176	194	387
4 OD x 0.75	100 OD x 22	0.35	9	13	29	157	314	345	691
5 OD x 1.25	125 OD x 30	0.45	11	19	42	245	490	539	1,078
6 OD x 1.25	150 OD x 30	0.50	12	28	62	353	706	777	1,553
1.5 x 1.5 x 0.5	38 x 38 x 13	0.20	5	2	4	29	58	64	128
2 x 2 x 0.75	50 x 50 x 22	0.20	5	4	9	50	100	110	220
2.17 x 2.17 x 0.5	55 x 55 x 13	0.20	5	4	9	60	121	132	266
2.4 x 2.4 x 0.75	60 x 60 x 22	0.30	7	6	13	72	144	158	317
3 x 3 x 0.75	75 x 75 x 22	0.30	7	8	18	112	225	246	495
4 x 4 x 0.75	100 x 100 x 22	0.35	9	14	31	200	400	440	880
5 x 5 x 1.25	125 x 125 x 30	0.45	11	24	53	312	625	686	1,375
5.25 x 5.25 x 0.75	134 x 134 x 22	0.45	11	28	62	359	718	790	1,580
6 x 6 x 1.25	150 x 150 x 30	0.50	12	36	79	450	900	990	1,980

OD = Outer diameter
The details supplied should be regarded as reference values and not warranted values. Other sizes and shapes available on request.

UDICELL Exactfill Housing System for tubular filters

Filtration system for large steel and iron castings

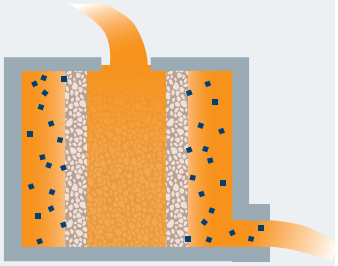
The Exactfill housing system can be easily integrated in an existing pouring system comprising chamotte and fire-resistant pipes. Assembly of multiple housings, even at various levels, permits the pouring of very large castings. The Exactfill housing has two outlets so that either the top or bottom can be closed off or both outlets can be used. This feature eliminates the need for left or right hand versions. These housings can also be installed horizontally.

Benefits

- Self supporting geometry
- Very compact in size and construction
- Quick installation and easy to use with minimum involvement in the circulation

Redefinition of filtration coverage

The UDICELL Exactfill housing system features an XL cylindrical UDICELL zirconia filter – the first of its kind. One of these filters will replace three standard filters, while at the same time minimizing the chance of any filter damage. Compared to similar units that use multiple filters, this XL cylindrical version offers easy assembly with extreme system safety, which improves not only filtration effectiveness but also assembly time, ultimately reducing cost.



Filter housing	Filter size		Diameter inlet / outlet		Filter Area (out-side)	Capacity			
	inch	mm	inch	mm	cm^2	kg		lb	
						Dl	StL	Dl	StL
Exactfill 125/60	6 OD x 3,5 ID x 5	150 OD x 90 ID x 125	2.36	60	589	1,200 – 2,200	700 – 1,300	2,645 – 4,850	1,550 – 2,860
Exactfill 150/60	6 OD x 3,5 ID x 6	150 OD x 90 ID x 150	2.36	60	707	2,000 – 3,000	1,000 – 2,000	4,400 – 6,600	2,200 – 4,400
Exactfill 150/80	6 OD x 3,5 ID x 6	150 OD x 90 ID x 150	3.15	80	707	2,000 – 3,000	1,000 – 2,000	4,400 – 6,600	2,200 – 4,400
Exactfill 200/80	6 OD x 3,5 ID x 8	150 OD x 90 ID x 200	3.15	80	942	2,500 – 4,500	1,500 – 3,500	5,500 – 9,900	3,300 – 7,710
Exactfill 300/100	7 OD x 4,3 ID x 12	180 OD x 110 ID x 300	4.7/2 x 4	120/ 2 x 100	1,697	3,500 –10,000	3,000 – 6,500	6,500 –20,000	6,000 –13,000

OD = Outer diameter, ID = Inner diameter
The details supplied should be regarded as reference values and not warranted values. Other sizes and shapes available on request.

UDICELL
Exactfill Housing System

Filter Systems for large steel and iron castings

The UDICELL Exactfill standard ceramic housings are a cost-effective and efficient way to produce large ferrous castings. With the increased size capabilities of reticulated ceramic filter manufacturing, ASK Chamicals also leads the way in successful filtration in the large casting segment. Where standard pouring systems are used, the Exactfill housing system can be easily integrated in the gating system.

Benefits

- 5 different styles to support a variety of uses
- Cost-effective
- Rapidly installed & easy to use

Round

Tee

Elbow

Steel and iron

Filter housing	Filter size		Flow rate		Capacity			
					kg		lb	
	inch	mm	kg/sec	lb/sec	DI/LCLA	SS	DI/LCLA	SS
Exactfill R-100	10 OD x 1.50	250 x 35	78	173	753	1,098	1,661	2,421
Exactfill R-90	9 OD x 1.50	225 x 35	64	140	618	901	1,363	1,987
Exactfill R-80	8 OD x 1.50	200 x 35	50	111	483	704	1,065	1,552
Exactfill R-70	7 OD x 1.25	175 x 35	38	85	370	539	815	1,189
Exactfill R-60	6 OD x 1.25	150 x 30	28	62	270	394	596	869
Exactfill T-60	6 x 6 x 1.25	150 x 150 x 30	36	79	346	505	763	1,112
Exactfill T-50	5 x 5 x 1.25	125 x 125 x 30	25	55	240	350	530	773
Exactfill E-60	6 x 6 x 1.25	150 x 150 x 30	36	79	346	505	763	1,112
Exactfill E-50	5 x 5 x 1.25	125 x 125 x 30	25	55	240	350	530	773
Exactfill I-30	3 x 3 x 0.75	75 x 75 x 22	9	20	87	126	191	278
Exactfill I-40	4 x 4 x 0.75	100 x 100 x 22	16	35	154	224	339	494
Exactfill S-30	3 x 3 x 1.00	75 x 75 x 25	9	20	87	126	191	278
Exactfill S-50	5 x 5 x 1.25	125 x 125 x 30	25	55	240	350	530	773
Exactfill S-60	6 x 6 x 1.25	150 x 150 x 30	36	79	346	505	763	1,112

LCLA = Low Carbon Low Alloy Steel, SS = stainless steel, R = round – vertically implemented UDICELL round filters, I = iron – vertically implemented UDICELL square filters, T = tee – horizontally implemented UDICELL square filters, S = steel – vertically implemented UDICELL square filters, E = elbow – horizontally implemented UDICELL square filters, OD = Outer diameter
The details supplied should be regarded as reference values and not warranted values. Other sizes and shapes available on request.

Added Value for our Customers

Application technology and technical sales – for complete process transparency

Application technology and technical sales at ASK Chemicals offer our customers comprehensive expertise in all areas of foundry technology and metallurgy. We offer a comprehensive service that focuses on the production process as a whole and helps customers not only to cut costs but also to enhance their processes. ASK Chemicals also conducts casting defect analyses and offers its customers the opportunity to have tailored training sessions on the customer's own premises.

Benefits

- Improved decision-making-thanks to greater transparency
- Reliable recommendations
- Quick response
- Customized solution development
- Cost-in-use reporting (i.e. savings)
- Casting defect analyses
- On-site training sessions

EXACTCALC

EXACTCALC software, which is exclusive to ASK Chemicals, was specifically designed to assist the foundry engineer with riser and gating system design. With EXACTCALC you will receive critical and comprehensive calculations: casting weight, modulus, riser feeding distance, riser size, riser neck contact dimensions, gating system dimensions and filter size.

Benefits

- Accurate recommendations
- Customizable "learning feature" specific to your foundry
- Printable results

Design Services – for perfect casting results

Our Design Services team monitors the entire process from the development of the design concept and validation right up to the production of the cast part prototype. Our engineers have a wide range of experience and a clear understanding of all aspects of foundry technology and metallurgy. Our Design Services team has the right combination of design, production and simulation expertise, co-operates with external companies and service providers, and enjoys extensive industry experience. ASK Chemicals' simulation service offers wide-ranging technical knowledge and understanding combined with state-of-the-art simulation programs (MAGMA, Novacast, FLOW-3D and Arena-Flow).

Benefits

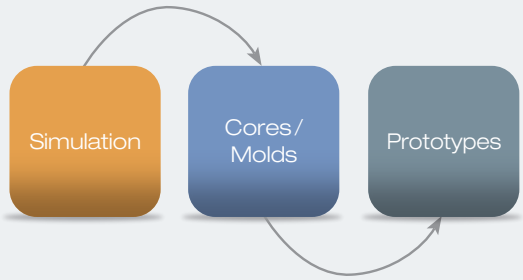
- Higher productivity and optimized catalyst consumption
- Manufacturing process design, including inorganic technology
- Calculation of optimal feed
- Optimized design and manufacture of model plates, core boxes and molds
- Less scrap
- Shorter product launch times
- Quicker time to market

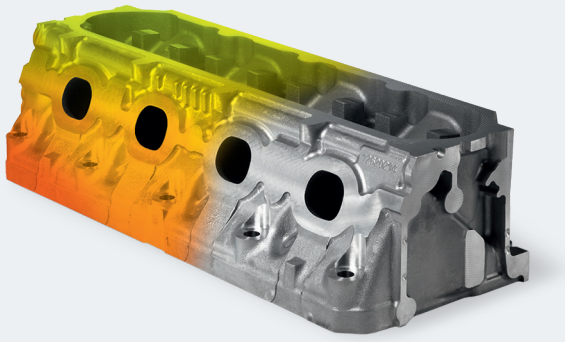
Simulation services

The simulation of casting processes provides foundries with invaluable casting mold information. Specifically, this benefit allows for the optimization of gating and feeding systems, overflows, venting design and risers. Moreover, it provides critical insight into the influences and effects directly related to casting integrity, such as cooling and heating measurements, filling and solidification times.

From the idea to the prototype

ASK Chemicals supports your entire process from the concept to prototype production. Your benefit: you enjoy wide-ranging expertise from a single source.





Research and development – for innovation near you

Our Research and Development department performs both innovation-driven groundwork as well as market and customer-driven development. Interaction between these three areas is of fundamental importance in terms of offering our customers technologically sophisticated products and efficiency-enhancing solutions at all times. Through close cooperation and the constant exchange of ideas with our application technology and technical sales specialists, research and development at ASK Chemicals is always in tune with the market and also maintains a presence on the customer's own premises.

Benefits

- Many years of experience
- Global presence and availability
- Comprehensive knowledge of the regional sand types and technological requirements
- Short response times for our customers
- First-class equipment

Comprehensive research and development services

Pilot foundry

- Fully equipped research foundry
- Mold production, mold / core package assembly and casting
- "Real world" foundry process representation

Metallurgical investigations

- Comprehensive examination of the graphite structure and metallic matrix: graphite size, number of nodules, degree of dispersion, nodularity, ferrite / pearlite ratio
- Preparation of metallurgical reports

Sand laboratory

- Examination of high-temperature materials
- Testing of tensile strength, compression and transverse loading
- Sand characterization and analysis

Product development and technical support

- Casting defect analysis
- Full spectrum chemical and polymer analysis
- Product, process and test method development

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Please contact ASK for any questions concerning the usage of these marks.

www.ask-chemicals.com/locations

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