Foundry Perlite

Premium Perlite Slag Coagulant

Engineered Mineral Solutions

Inpro

www.perlite.co.nz

OUR COMPANY

Industrial Processors Ltd (INPRO) was incorporated in 1996 with a focus on the extraction, processing and beneficiation of perlite in New Zealand. We have production facilities in both Auckland and Sydney, and our product range has developed over the years to encompass all aspects of perlite processing, including the operation of mobile perlite expansion plants.

► Perlite

INPRO quarries a perlite resource in the central north island of New Zealand, with an estimated extractable volume of over 1,000,000m3. We mine and primarily process the ore from this resource before the graded perlite is transported to our Auckland factory.
A large proportion of INPRO production is exported into the foundry, cryogenics, pipe insulation and filtration markets in Asia, Australia and the Middles East. We also operate a perlite expansion plant supplying products for the domestic horticultural, construction and cryogenic markets in New Zealand.

► Vermiculite

INPRO is the appointed agent of AUSPERL Pty Ltd for the distribution of vermiculite in New Zealand. Applications for exfoliated vermiculite include fire proofing, refractory blocks, brake linings and horticulture.

► Pumice

INPRO also operates a pumice and sand quarry in the central north island of New Zealand, near Lake Taupo. Various grades of washed and screened pumice are supplied, including those for horticulture and construction and highly processed and milled grades for mild abrasive applications (e.g. printed circuit board cleaning, soaps, dentistry and exfoliants).

► Cellulose

INPRO is the appointed distributor in New Zealand of the cellulose products produced by Creafill USA Ltd.

► Sand

From the pumice and sand quarry we also produce washed and graded sand for the domestic plaster and concrete markets. Specialty dried sands are processed in Auckland for foundry, construction and industrial applications.

COMPETITIVE ADVANTAGES

INPRO perlite is chosen over competing international ores for the following reasons:

- Our company can supply on demand with a minimum of delay or fuss.
- New Zealand is a major exporter of refrigerated perishable cargoes. As a result, shipping options from Auckland to all major international ports are available with excellent frequency and transit times.
- Our products are always professionally packed and shipped.
- Our quality control procedures maintain the supplied perlite in specification at all times.

FOUNDRY APPLICATIONS

Perlite is one of the safest, most unique minerals in the world. It is lightweight, inorganic, incombustible, compressible, highly absorbent, non-reactive (yet compatible in many chemical compositions as a functional filler), and is available locally and globally.

Perlite is used in thousands of applications including potting soils, light weight concretes, fire protection construction materials, in-tumescent applications, as a UN approved packaging material for the safe shipment of hazardous liquids, texturisers in paints and coatings, and most recently as a nano-composite for films, coatings and barrier applications.

When subjected to heat perlite has the unusual property of expanding up to twenty times its original size, making it extremely lightweight. Perlite insulation is used in high temperature applications in the steel and foundry industries such as ladle topping, hot topping and risering, in topping compounds, in exothermic and insulating shapes, as a cushioning agent, in molding sands and in the manufacture of refractory blocks and bricks. High temperature performance of expanded perlite has been well documented.

► Ladle Topping

Expanded or unexpanded granular ore forms of perlite are added to molten metal pouring ladles. Most often the ore form is used which reacts with slag in the ladle to allow for the easy removal of the slag layer. In cases where it is desirable to maintain a metal temperature in a ladle, the expanded perlite layer forms an efficient insulating blanket. When introduced during ladle filling, a gentle rolling motion is produced which cleanses the metal by coagulating impurities.

Ladle-lining life is increased by virtue of a vitreous residual coating left on the refractory by the perlite. An added advantage of perlite in this application is that no objectionable smoke or noxious fumes are produced.

► Hot Topping and Risering

Perlite is often mixed with exothermic powders and used in hot tops and risers to prevent shrinkage cavities in ingots and castings. Perlite is the most used lightweight filler used for these applications because of its availability, competitive price, and superior properties. Normal additions of perlite to insulating and exothermic compounds are in the range of 3-20% by weight.

► Refractories

Perlite is used in the manufacture of refractories where the average temperature does not exceed 1100°c. Its excellent insulating properties ensure substantial usage of perlite in refractory castables, bricks and blocks. In higher duty applications, perlite refractories are used as reserve insulating layers for higher duty refractories.

► Foundry Core and Molding Sand

Perlite is added to foundry core and molding sand mixtures as a cushioning agent to compensate for the expansion of crystalline silica as it goes through the phase of changes of temperature in excess of 540°c. Casting defects such as buckles, veining, fissuring and penetration are minimized and cleaning room costs are reduced. In addition, perlite improves permeability of core sands thus reducing defects attributable to poor venting.

Our foundry grade perlite is distributed throughout New Zealand, North and South East Asia, Australia, and southern Africa. We are adept at producing the required product, in the best packaging, and supplying to the requested destination quickly and efficiently.

Typical Chemical Analysis		Typical Physical Properties	
Silica	74.0%	Specific Gravity (g/ml)	2-2.1 g/ml
Aluminum Oxide	14.0%	Colour	Light Brown
Ferric Oxide	1.0%	Fusion Point	1260 – 1340c
Calcium Oxide	1.3 %	Softening Point	871 – 1093c
Magnesium Oxide	0.3%	Test Methods	
Sodium Oxide	3.0%	1 Chemical by XRF	
Potassium Oxide	4.0%	2 Moisture by drying 110 C for 1.5 hrs	
Titanium Oxide	0.1%	3 LOI - muffle furnace at 1100 C/1.5 hrs	
Heavy Metals	Trace	4 Spec gravity by water immersion	
Sulphate	Trace	5 PSD by dry sieve on BS410 sieves	
Moisture	0.5%	6 Loose bulk density by DIN 53194	
Loss in Ignition	3.2%		
pH (water extract)	6.5 - 8.0		

Micron/ Mesh	British	US	05	101	105	205	310
3.35mm	5	6					0-10%
2.800mm	6	7					10-25%
2.000mm	8	10				0-20%	40-60%
1.180mm	14	16			0-5%		
1.000mm	16	18			5-15%	60-75%	95-100%
0.850mm	18	20		0-5%			
0.710mm	22	25			45-70%		
0.600mm	25	30	0-15%				
0.500mm	35	35		65-70%	95-100%	90-100%	
0.425mm	36	40					
0.300mm	52	50	90-100%	95-100%			

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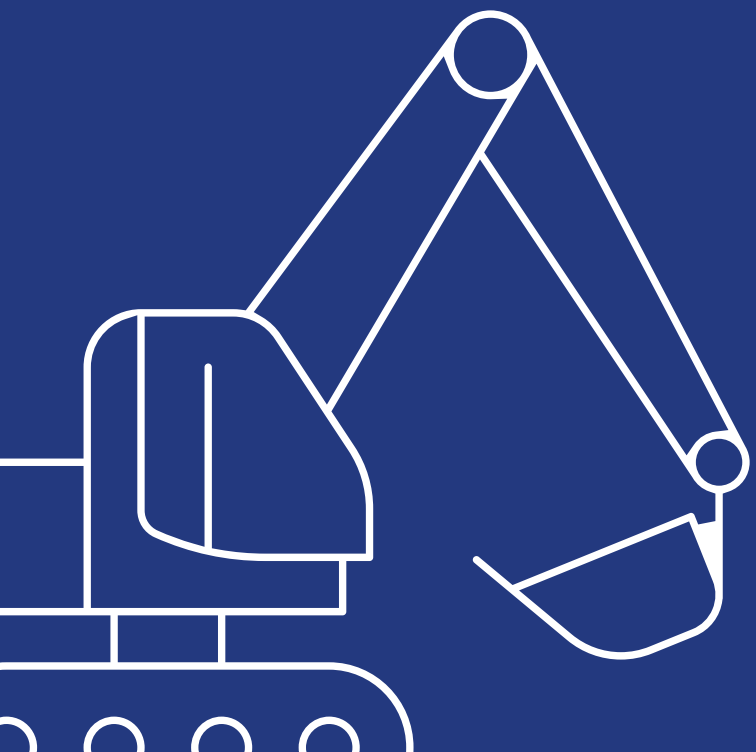

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