



Our Strength is Quality, Consistency & Service



GOYAL GROUP

Pushing Casting Industry Ahead

Fast Forward

The Beginning



The history of "Casting Industry" in India dates back to "Indus Valley Civilization", since then, there have been numerous advancement and refinement to take this industry from "Skilled Art" into "High Precision, High Productivity & Basic Engineering Industry of the Modern Era". Today, India is a dominating source of Global Casting Procurement.

Importance of Coal Dust / Lustrous Carbon Additives for the modern foundries needs no extensive explanation. To cater to the exacting needs of Foundries for these Additives, was the focus of the "Goyal Group" when it commenced its Activities:

Goyal Pulverisers & Minerals (GPM), first enterprise of Goyal Group, Nagpur, embarked on the production of **Coal Dust** for foundry requirements in 1982, GPM continues to cater this need of Foundries, even today.

Goyal Industries, is ISO-9001 : 2015 Certified, is the second enterprise of the Goyal Group. It commenced the manufacturing of a series of Lustrous Carbon Additives - "**PihKol**" in April 2002. To enhance the product range, Carbon Raisers "**PihCarb**" & "**Carbolit**" were added in 2003.

Goyal Technochem Pvt. Ltd., (GTPL) also an **ISO 9001:2015 Certified**, was the third enterprise of Goyal Group, that came into existence in 2006 to augment the growing demand of "**PihKol**". The capacity to manufacture "**PihKol**" has more than doubled since then. Having stabilized "**PihKol**", GTPL diversified into allied foundry needs. In this Direction, GTPL has diversified into manufacture of Foundry Coatings in Feb. 2012.

In 2016 GTPL, introduced **PihBond** - A Pre-Blended Additive for Green Sand. Having closely associated with the Foundries for more than 10 years, Goyal Group identified that the main cause of most Sand Related Defects seemed to be Bentonite. After nearly 4 years of R&D, GTPL was successful in developing a Pre-Blended Additive- **PihBond** Series- to replace Bentonite and LCA.

In 2018 Goyal Pulverisers & Chemicals Pvt. Ltd., (GPCPL) came into existence to augment and support in the production capabilities of **PihBond** and provide necessary basic infrastructures to GTPL as required.

We feel privileged & satisfied, when we are asked to associate with Foundries to solve technical problems, not even remotely associated with our products.

As an extension to the philosophy of, "**SERVICE TO CUSTOMERS**", the Goyal Group has established itself in the field of Education by initiating **J D College of Engineering & Management, Nagpur** in the year 2007. Further, in 2008, **MBA** was introduced and in 2009 **J D Polytechnic**. In the year 2012, steps to add Post Graduation were taken and courses in **M.Tech.**, were started. Within short period of 10 years college achieved **National Assessment And Accreditation Council** with **A Grade** as well as **Autonomy** recognition. Since 2019, Establishment of state of art research facilities have been undertaken, enabling **J D Institute** to offer **PhD** courses.

Under the dynamic leadership of Mr. Sanjay Goyal & Mr. Ajay Goyal, "Goyal Group" has created a benchmark for QUALITY, CONSISTENCY and TECHNICAL SERVICES. These factors have ensured quantum growth year-after year, as well as the goodwill of customers.

Thus the Philosophy of Goyal Group transformed to: "**SERVICE TO CUSTOMER & SOCIETY**"



GOYAL INDUSTRIES

GOYAL TECHNOCHEM
PVT. LTD.

"PihBond"

"PihBond" is a Pre-Blended Additive solution to the Foundry Green Sand System, replacing both, the Lustrous Carbon Additive as well as Bentonite.

"PihBond" is formulated with Highly Potent Lustrous Carbon and a judicious blend of Bentonites, ensuring an excellent "Peel Off" of sand in castings with Higher Mould Strength at considerably lowered additions.

PihBond has been formulated in 2 variations – **PihBond-P-009** – for Horizontally Parted Moulding Lines and **PihBond-P-045** – for Vertically Parted Moulding Lines.

Specification	PihBond-P-009	PihBond-P-045
Volatile Matter	20±5%	18±3%
Loss on Ignition	30±5%	26±3%
MB Value	90±5ml/gm	86±6ml/gm
Swelling	25ml (Min.)	25ml (Min.)

Note:

"PihBond" is not Self Igniting.

Usage:

Addition of **"PihBond"** is gradually reduced to nearly 70 to 60% of the Bentonite + LCA addition.

Addition of required quantity of **"PihBond"** is done immediately after sand is added to mixer and dry mixed as per normal practice.

Water is added in the required quantity and after adequate mixing, the mixed sand is discharged.

Our Experience

PihBond has found application in almost the entire range of casting varieties as well as various Moulding

Lines:

Casting variety:-

- Automotive Castings
- Pump Castings
- Sanitary Castings
- Others

Molding Lines:-

- Jolt / Squeeze Lines
- High Pressure Lines –Horizontal & Vertical without flask and with flask.



The induction of **PihBond** requires the Goyal Technical Team to closely interact on the Foundry Floor with the Foundry team for closely monitoring the sand parameters. This ensures enhanced sand control, resulting in considerable improvement in Casting Finish.

Packing

25 kg / 50 kg HDPE Bags.

500 kg / 1,000 kg Jumbo Bags.

Precautions:

- ◆ Store **"PihBond"** in covered area away from moisture and heat.
- ◆ Ensure opened bags of **"PihBond"** are sealed to prevent exposure to moisture.
- ◆ Store in stacks of 2 mtrs. high maximum.
- ◆ During storage ensure that any other carbonaceous material is stacked such that at least 1 mtr. gap is maintained.
- ◆ Ensure storage of only sealed bags while stacking.



Surface Finish
After PihBond

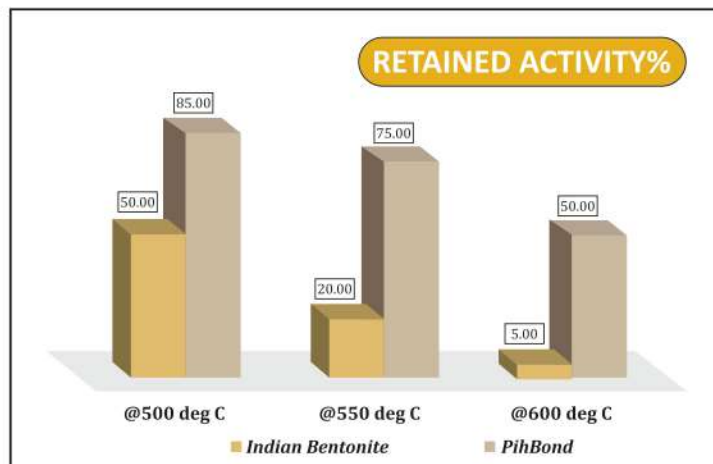
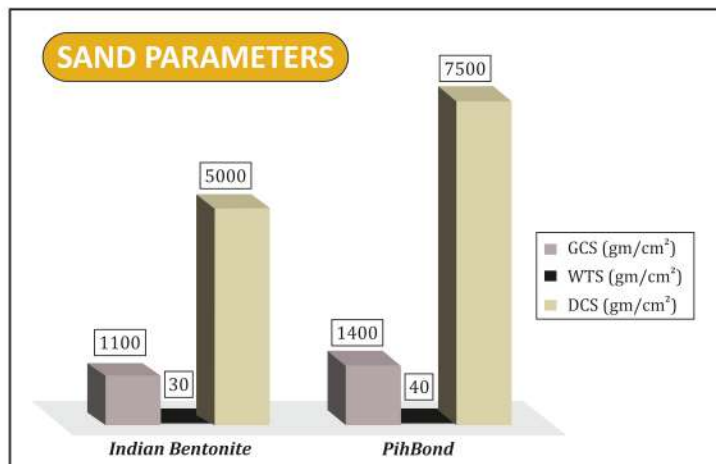


Casting Name : Bogie Bracket
Foundry Name : Nelcast Limited, Chennai, India
Additive Used : PihBond P-009
Bunch Weight : 611 kg
Casting Weight : 377 kg

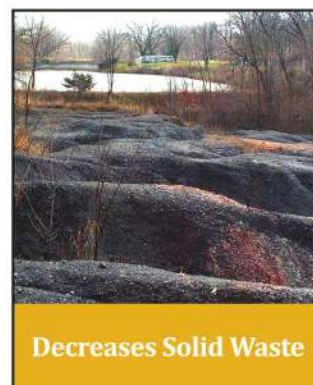
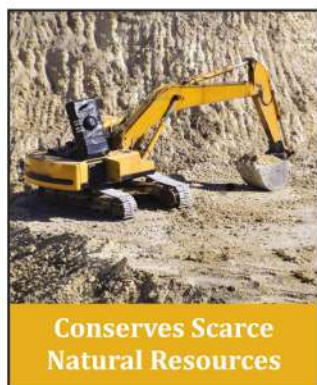


Surface Finish
After PihBond

Effectiveness of PihBond



Test results as obtained in laboratory with Lab Sand Muller using New Sand + (Bentonite + LCA) / PihBond + Water as per Standard. Shop floor results may vary.



"Coal Dust"

Goyal Pulverisers & Minerals (GPM) manufactures Coal Dust to the specific requirements of foundries. With state of art plant and machinery, the high consistency in quality, making Goyal Group Coal Dust a premium product.

Coal Dust is available in:

Ash Content	7% Max.	18±2%
Volatile Matter	60±5%	40±5%
Fixed Carbon	By Difference	By Difference

- Other grades are available on request.

Usage:

- Required quantities of Coal Dust is added in the mixer, and dry mixed before water addition.

Advantages:

- Coal Dust improves the finish of castings.
- Coal Dust burns out during the Casting Process, providing better collapsibility to sand at knockout.
- On account of certain developments made on Coal Dust, Goyal Group can claim a unique record preventing self ignition altogether.
- Goyal Group has ensured consistency in properties of the Coal Dust, which enables foundries to use the same without encountering the usual problems associated with Coal Dust.
- With Introduction of special coal drying facility moisture content of cold dust are guaranteed.

Packing

20Kg HDPE Bags (Ash Content - 18±2%)

50Kg HDPE Bags (Ash Content 7% Max)

500Kg/1,000 Kg Jumbo Bags



Storage

Keep in covered place away from moisture and flames. Store in stacks of 1 mtrs. high maximum. During storage ensure that any other carbonaceous material is stacked such that at least 1 mtr. gap is maintained. Ensure storage of only sealed bags while stacking.

"Carburizer"

"**Carbolit**" is a carbon raiser catering to the stringent needs of increasing Carbon in the melt for S. G. Iron and Grey Cast Iron, where the content of elements like Sulphur, are to be controlled carefully.

"**Carbolit**" offered by Goyal Group, is from prime sources and without any contamination.

Usage

Yield of over 90% of the Fixed Carbon content has been reported with use of "**Carbolit**".



"**PihCarb**" is an economical grade low Sulphur Carbon Raiser for Grey Cast Iron and has found used in certain grades of Ductile Iron as well.

The "**PihCarb**" marketed by Goyal Group, is sourced from prime sources and conforms to required quality.

Specification	PihCarb	Carbolit
Fixed Carbon	92% Min.	97% Min.
VM & Ash	By Difference	By Difference
Sulphur	0.5% Max.	0.05% Max.
Grain Size	0 to 25 mm	0-5 mm
Packing	HDPE Bags 50 Kg	HDPE Bags 25/30/50 Kg

Usage

Yield of over 90% of the Fixed Carbon content.

Storage

Keep in covered place away from moisture and flames.

Store in stacks of 2 mtrs. high maximum.

During storage ensure that any other carbonaceous material is stacked such that at least 1 mtr. gap is maintained.

Ensure storage of only sealed bags while stacking.



"Coatings"

In keeping with the theme of Goyal Group "Casting Aesthetics" - the Goyal Group Management diversified into Foundry Coatings, which have found favor in various foundries.

The Coatings range consists of:

■ **PrimeKote**

A series of **Water Based** coatings using Zircon / Graphite / Mixed Refractories etc. as filter material.

■ **PrimeLite**

A series of **Solvent Based** coatings using Zircon / Graphite / Mixed Refractories etc. as filter material.

The selection of the coating for a specific foundry is based on:-

- ▶ The alloy being produced
- ▶ The binder used
- ▶ Specific constraints / requirements of the foundry

The Goyal Group Technical Team studies the various conditions in the Foundry and then recommends the coatings, most suitable, for the specific usage.

To support the Coatings applications, Goyal Group have developed:

■ **PrimeFlash**

A series of **Solvent** which will exactly compliment PrimeLite range.

■ **PrimeSol**

A series of Miscellaneous foundry consumable to support the foundry, like:

- ▶ Core box cleaning compound for Cold Box / No Bake
- ▶ Core stripping / mold stripping compounds for Shell/ Cold Box / Green Sand
- ▶ Other consumables as required by the Foundry.



"PihKol"

"PihKol" is a potent Carbonaceous Green Sand Additive, developed to replace conventional Coal Dust for imparting finish to castings.

"PihKol" is based on selected Low Ash, High Lustrous Carbon donating carbonaceous material.

"PihKol" has adequate Lustrous Carbon Donning capacity ensuring a proper non wetting barrier between Metal and Mold, giving good peel off to castings, resulting in:

- Retention of sand in the system it self
- Lowered WIP in the cleaning of casting
- Reduced Shot Blasting Time

The "PihKol" Series:

Specification	PihKol-A	PihKol-C	PihKol-B	PihKol
Volatile Matter	57±5%	63±5%	55±5%	68±5%
Ash Content	7% Max.	7% Max.	7% Max.	7% Max.
Fixed Carbon	By Difference	By Difference	By Difference	By Difference

The Goyal Group offer tailor made solutions as and when deemed necessary.

Usage:

Addition generally varies from 0.2 to 0.5% of the sand mixed.

■ The various factors to be considered (among them are):

1. Sand : Metal Ratio
2. Burn out of the additive
3. LOI requirements based on the size, section thickness & heat content of castings.

Note:

"PihKol" is not selfigniting.

Packing:

25kg / 50kg HDPE Bags.
500kg / 1000 kg Jumbo Bags.



Storage:

Keep in covered place away from moisture and flames. Store in stacks of 2mtrs high maximum.

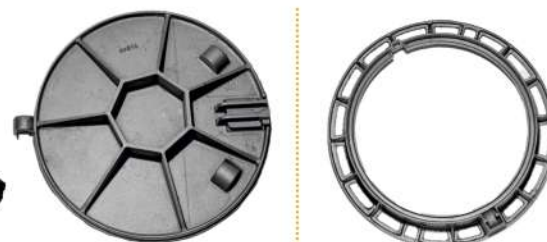
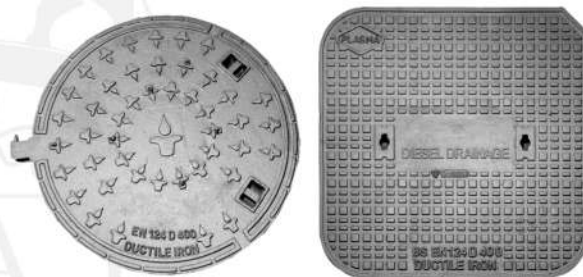
During storage ensure that any other carbonaceous material is stacked such that, at least 1 mtr. gap is maintained. Ensure storage of only sealed bags while stacking.

PihKol-B

The induction and development of **PihKol-B** was to cater to specific demands of certain very discerning foundries, where the addition rates has been reported lower by between 20 to 50% as compared to normal **PihKol**, while ensuring lower sand sticking to castings.

This lowered addition rates enabled the foundries to reduce friability of sand, thus, decreasing the possibilities of sand inclusion in casting as well as imparting better finish.

Foundry Name: Plasma Alloys Pvt. Ltd., Rajkot, India



OUR NETWORK



GOYAL INDUSTRIES

UNIT-1: N-89, MIDC, Hingna Road, Nagpur - 440 016.

UNIT-2: S-10, MIDC, Hingna Road, Nagpur - 440 016.

GOYAL TECHNOCHEM PVT. LTD.

UNIT-1: N-90, MIDC, Hingna Road, Nagpur - 440 016.

UNIT-2: H-1, MIDC, Buttibori, Nagpur - 441 122.

GOYAL PULVERISERS & MINERALS

UNIT-1: N-32, MIDC, Hingna Road, Nagpur - 440 016.

GOYAL PULVERISERS & CHEMICALS PVT. LTD.

UNIT-1: H-2, MIDC, Buttibori, Nagpur - 441 122.

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