

## Impregnating-Grade Coal Tar Pitch

The impregnating-grade coal tar pitch is a special type of coal tar pitch, which has a low content (0-3 %) of quinolone insoluble (QI), besides having lower values of softening point (SP), toluene insoluble (TI), coking yield and specific gravity (SG), compared to those of the binder-grade coal tar pitch. It is used in large quantities to densify graphite electrodes, employed in steel and chemical industry. Besides this, it is also used in the development of advanced carbon products like high performance carbon fibre, needle coke, high-density high-strength graphite and carbon-carbon composites which has many potential applications. The commercially-available coal tars or tar pitches invariably contain the QI-particles (5-15%), which make them unsuitable for the impregnation purposes. The conventional methods involving filtration, solvent extraction and centrifugation for the reduction or total removal of these QI-particles from these materials are cumbersome and expensive. The present process of producing the impregnating-grade coal tar pitch is very novel and involves the treatment of the commercial coal tar or coal tar pitch with special inexpensive / industrial solvents. The treatment results in the separation of the pitch-solvent mixture into two components - one major, which contains almost no QI, and the other minor, which is rich in QI. The minor component is reused in the process and the major component is heat-treated to recover the solvent and obtain the impregnating pitch. The characteristics of the pitch produced at NPL by the present process are as follows:-

Softening point 80-100°C Quinoline insoluble 0.0-3.0 % Toluene insoluble 16-24 %  
Coking value 42-46 % Specific gravity 1.26-1.28 Ash content 0.05 % (Max.)

**NATIONAL PHYSICAL LABORATORY**

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**Utility/Advantages**

- Extensively used for the densification of graphite electrodes & anodes, C-C composites and other carbon products.
- Used as an excellent precursor for advanced carbon products like -
  - Pitch-based carbon fibres
  - High density - high strength - isotropic graphite
  - Supreme quality needle coke
  - Matrix of C-C composites

**Specifications**

- Softening point: 80 - 100°C
- Quinoline insolubles: 3.0 % (Max.)
- Toluene insolubles: 16 - 24 %
- Coking value: 42 - 46 %
- Specific gravity: 1.26 - 1.28
- Ash content: 0.05 %

**Potential Users**

- Carbon and graphite industry
- Steel industry
- Ferrous & non-ferrous alloys Industries
- Ferroalloys & refractory industries
- Metallurgical industry
- Chemical industry
- Nuclear sector
- Aerospace sector
- Defence sector

**National Physical Laboratory**  
Dr. K. S. Krishnan Marg, New Delhi - 1100 12  
dnpl@mail.nplindia.ernet.in

**Licensee:**  
M. S. Kumar's Tar Products, Bangalore

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**Contact:**

Head, Industrial Liaison Group (ILG)  
Room No. 46-A, Main Building  
CSIR-National Physical Laboratory  
Dr. K.S. Krishnan Marg  
New Delhi 110012, INDIA.

Email: [headilg@nplindia.org](mailto:headilg@nplindia.org)

Tel: +91-11-4560-8247/9385

Fax: +91-11-4560-9310