PETKEM

Bharat Petroleum

OUR CHEMISTRY OF SUCCESS

MESSAGE FROM CHAIRMAN AND MANAGING DIRECTOR

Dear Business Partner,

Greetings from Bharat Petroleum!

With immense pleasure, I would like to share that with our unwavering focus on building lasting impressions through continuous development and strengthening of our position in the downstream sector, BPCL is now fully poised to lead a Petrochemical revolution in our Country.

With "Customer Centricity" and "Innovation" being our key values, BPCL is proud to announce its foray into the manufacturing of 'niche' Petchem products through its worldscale, state-of-the-art Propylene Derivatives Petrochemical Project (PDPP) at Kochi. With in-house Propylene feedstock produced at the largest PSU refinery at Kochi, BPCL has commenced production of Acrylic Acid, Oxo Alcohols and Acrylates which potentially shall replace the imports and immensely benefit the customers in various manufacturing segments. In the coming years, we have plans to strengthen our journey in petrochemical space.

I am confident that being the largest producer of oxo alcohols and the the first and only domestic producer across the acrylic acid and acrylate portfolio, we would be in a position to fully meet the growing demand for petrochemicals with tailored service offerings and deliver superior value proposition on a sustained basis.

This 'Petchem Technical Brochure' shall provide all the required information on the products and showcase our ability to the Business Partners. Our Industrial & Commercial team shall stay in touch with you to understand your requirements and deliver superior value.

I strongly believe in Henry Ford's quote - "Coming Together is the Beginning, Keeping Together is Progress and Working Together is Success."

With best wishes!

Arun Kumar Singh
Chairman and Managing Director
Bharat Petroleum Corporation Limited

MESSAGE FROM EXECUTIVE DIRECTOR - I&C

Dear Business Partner,

I am glad to present the 'Petchem Technical Brochure' covering the first six Petrochemical products manufactured and marketed by BPCL.

We, at Bharat Petroleum Corporation Ltd., have continuously upgraded our petroleum products' portfolio and developed new products and grades in tune with the changing requirements of our valued customers. As a 'Make in India' initiative, we are proud to launch our first six major Petrochemical Products namely, Acrylic Acid, n-Butanol, Iso-Butanol, 2-Ethyl Hexanol, Butyl Acrylate and 2-Ethyl Hexyl Acrylate.

Our Refinery at Kochi, under the Integrated Refinery Expansion Project (IREP) has increased the Refining Capacity from 9.5 MMTPA to 15.5 MMTPA to meet the increased market demand and commissioned the Propylene Derivatives Petrochemical Project (PDPP) to produce the above-mentioned world-class Petrochemical Products.

Our foray into the petrochemicals segment would go a long way in reducing the country's dependence on imports.

We are fully geared up to meet the entire demand in bulk as well as in packed drums as per the requirements. Our logistics team has made robust delivery arrangements through ISO Containers as required by the customers.

I am confident that the information given in this brochure will be immensely useful. In case, you have any query or wish to give your feedback / suggestions, please feel free to get in touch with our Business Development Team and the territory offices in the Business Contacts page.

Looking forward to a mutually benefitting and long term relationship.

Subikash Jena
Executive Director (Industrial & Commercial)
Bharat Petroleum Corporation Limited

ABOUT BPCL

A Fortune Global 500 Company, Bharat Petroleum is the second largest Oil Marketing Company and one of the premier integrated energy companies in India, engaged in refining of crude oil and marketing of petroleum products, with a significant presence in the upstream & downstream sectors of the oil and gas industry. The company attained the coveted Maharatna status, joining the elite club of companies having greater operational & financial autonomy.

Bharat Petroleum's Refineries at Mumbai, Kochi and Bina, have a combined refining capacity of 35.3 MMTPA. The marketing infrastructure includes a network of installations, depots, LPG bottling plant, lube blending plants, aviation service stations, dealers & distributors. Our distribution network comprises of 19000+ retail outlets, 6100+LPG distributorships, 700+Lubes channel partners, 80 retail depots, 54 LPG bottling plants, 64 aviation service stations, 4 cross-country pipelines, 4 Lube blending/filling plants across country. BPCL through subsidiary BPRL has presence in oil & gas exploration in 7 countries.

With a focus on sustainable solutions, the company is developing a vibrant ecosystem. Bharat Petroleum has been partnering with communities by supporting initiatives taken primarily in the areas of education, water conservation, skill development, health, community development, capacity building and employee volunteering. With 'Energizing Lives' as the core purpose, Bharat Petroleum's vision is to be the most admired global energy company leveraging talent, innovation & technology.

In line with our vision and current market environment , digitalization is identified as one of the key competitive differentiators that will give BPCL an edge in the days to come. With this inspiration the Corporation's Digital transformation "Project Anubhav" was conceived wherein we want to create exceptional and consistent customer experience underpinned by the three foundation pillars - Trust, Convenience and Personalization. Today we live in a highly connected digital world where our customers use world-class digital platforms to connect & transact themselves. "Project Anubhav" boasts of the best-in-class digital solutions like a Customer Engagement Platform, Digital Nerve Centre, Digital Marketing Platform and Integrated Supply Chain Management solutions.

1. Refineries

- Refinery at Mumbai, Kochi, Bina with a refining capacity of 35.3 MMPTA
- 4 cross-country pipelines
- R&D department for petrochemical, biofuel, catalyst development etc.

2. Retail

- 19000+ retail outlets
- 80 Retail depots

3. LPG

- 6,100+ LPG distributorships
- 54 LPG bottling plants
- 80+ million customers

4. Aviation

- 64 aviation service stations across the country

5. Lubricants

- 400+ product grades
- 4 Lube blending / filling plants
- 700+ channel partners
- 40,000+ Retailers and 20,000+ Garages

6. Industrial and Commercial

- 10,000+ B2B customers
- Tie up with key segment of Railways, State road transport corporations, defense, Paint, chemical, power & steel industries

7. GAS

- 50+ major LNG customers
- *stake in Petronet LNG & Indraprastha Gas Ltd.

SUSTAINABILITY

Sustainability, is a vital prerequisite for any organisation around the world and BPCL being a responsible corporate citizen and a progressive organisation, endeavours to create value and opportunity for all stakeholders to fulfil its commitments towards the society and the environment.

BPCL is at the forefront of driving various initiatives like the “Swacch Bharat Mission”, Cleaning of rivers, Zero Defect Zero Effect, Make in India, Smart Cities Mission and Housing for all for achieving the Sustainable Development Goals (SDGs). Guided by the Government’s “Atmanirbhar Bharat” initiative to create and fortify a nation reliant on itself and its people, BPCL has ventured into various projects bringing along with it the advances in technologies and major efficiency gains.

The Energy Sector has a pivotal contribution to make to catalyse the country’s progress and as a leader in the sector, BPCL continues to fuel India’s developmental journey and emboldens its resilience to face every economic and social challenge. A vision for the future, a large and dedicated employee base, global reach and satisfied customers are fundamental to BPCL’s ability to become the good corporate citizen that it strives to be. BPCL conducts the business activities in a manner that emphasises contributing equally to the betterment of People, Planet and Profit.

BPCL has been the proud recipient of various prestigious awards related to Corporate Governance, Sustainability, CSR, Brand, Logistics to cite a few.

We are proud to present the most recent sustainability report through the link given below:

https://www.bharatpetroleum.co.in/404.aspx?aspxerrorpath=/sustainability/sustainabilityreports.aspx

BPCL PETCHEM PROJECT

Keeping the vision of "Make in India", BPCL has forayed into the niche Petrochemicals Segment by setting up the Propylene Derivative Petrochemical Project (PDPP) at its Kochi Refinery. The product portfolio comprises of Acrylic Acid, Acrylates & Oxo-Alcohols. BPCL holds the distinction of being the very first company in India to have taken a giant step by venturing into the manufacture of Acrylic Acid and Acrylates.

The PDPP plant at BPCL's Kochi Refinery has employed state-of-the-art technologies for producing best-in-class products viz. Acrylic Acid, Oxo Alcohols and Acrylates. The Acrylic Acid Unit with a capacity 160,000 TPA is the world's largest single reactor unit. For producing Oxo–Alcohols, state-of-the-art technology – LP OXO SELECTORS M30 has been employed. The Butyl Acrylate Train with 130,000 TPA capacity installed in the PDPP plant is one of the largest single units designed and commissioned globally.

OXO ALCOHOLS	ACRYLIC ACID AND ACRYLATES
• 2-Ethyl Hexanol	• Acrylic Acid
• Normal Butanol	• Butyl Acrylate
• Iso Butanol	• 2 Ethyl Hexyl Acrylate

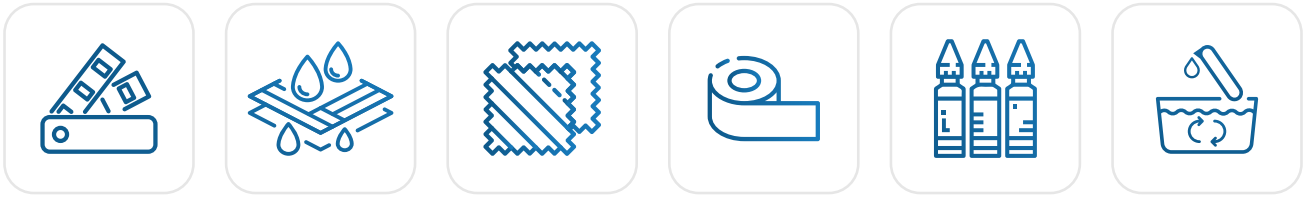
ACRYLIC ACID

ACRYLIC ACID is an unsaturated Carboxylic Acid produced from the latest Global Propylene Derivative technology using in-house Polymer Grade Propylene with 99.8 % purity. It is produced in multi-stage processing cycles with a purity of min. 99.5%. This niche product is used across various industry segments by virtue of its superior binding property.

ACRYLIC ACID	PROPERTIES	STORAGE & HANDLING
• IUPAC Nomenclature Prop-2-enoic Acid	• Colourless liquid with pungent odour.	• Recommended storage temperature is between 15 & 25°C. Acrylic Acid tends to polymerize at higher temperature and cease to flow at lower temperature.
• Technology Licensor Air Liquide Global E&C Solutions, Germany	• High-boiling point, low-volatility solvent.	• Recommended to store with inhibitors to prevent polymerization and under air (preferably with 8 vol.% oxygen, approx).
• CAS No. 79-10-7	• Miscible with water, alcohol, ether, and various organic solvents.	• Recommended to transport in ISO Containers and HDPE drums.

APPLICATIONS

- In the production of acrylic esters and resins, which are used primarily in coatings and adhesives.
- As Derivatives of Acrylic Acid which are used as raw materials for decorative, masonry and industrial coatings, adhesives, water treatment chemicals, paper and leather coatings, polishes.
- Manufacture of Polyacrylates which are used in SAP, dispersants and rheology controllers.
- As a comonomer with acrylamide to produce hydroxyacrylates for use in industrial coating formulations.



Acrylate paints & coatings | Super absorbent polymer | Leather & textile | Adhesives & sealants | Printing ink, detergent chemicals | Resins, water treatment chemicals

Sr. No.	Test	Unit	Specification
01	Appearance	-	Colourless clear liquid
02	Colour	Alpha	Max. 20
03	Acrylic Acid	Wt %	Min. 99.5
04	Acrylic Acid Dimer	Wt %	Max. 0.15
05	Acetic Acid	Wt %	Max. 0.1
06	Benzaldehyde	Wt %	Max. 0.015
07	Furfural	Wt %	Max. 0.025
08	Acrolein	Wt %	Max 0.0015
09	Propionic Acid	Wt %	Max. 0.05
10	Maleic Acid / Maleic anhydride	Wt %	Max. 0.15
11	Inhibitor (MEHQ)	ppmw	180 to 220
12	Water	Wt %	Max. 0.1

N-BUTANOL & ISO-BUTANOL

N-BUTANOL AND ISO-BUTANOL are a part of the Oxo-alcohol portfolio produced from the latest Propylene Derivative technology with a purity of min 99.5% wt and 99% wt respectively. They are produced through a two stage process of hydroformylation and hydrogenation. These products are used across various industry segments by virtue of their superior characteristics which enhance the strength and life of the end products.

PARTICULARS	N-BUTANOL	ISO-BUTANOL	PROPERTIES	STORAGE & HANDLING
• IUPAC Nomenclature	Butan-1-ol	2-Methylpropan-1-ol	• Lower APHA colour indicates their colourless and transparent properties	• Recommended storage at ambient temperature (between 10°C & 30°C)
• Technology Licensor	Johnson Matthey Davy Tech., UK	Johnson Matthey Davy Tech., UK	• Miscible with alcohol, ether and most organic solvents but have very limited miscibility with water	• Recommended to transport in ISO containers, Stainless steel or MS lorries and HDPE drums
• CAS No.	71-36-3	78-83-1		

APPLICATIONS

- As a solvent in the paint and coatings segment.
- As Feedstocks for synthesis into various butyl monocarboxylates, butyl xanthate, iso-butyl acetate etc.
- In pharmaceutical industry as an extractant.
- As a humectant for cellulose nitrate.
- As a solvent for dyes in printing ink.
- ISO-Butanol is used as a gasoline additive.

Paints and coatings

Sealants & dispersants

Plasticizers & textile chemicals

Binders & adhesives for pressure-sensitive tape

Printing ink

Acrylic polymers & polyacrylate

Sr. No.	Test	Unit	Specification N-BUTANOL	Specification ISO-BUTANOL
1	Appearance	-	Colourless clear liquid	Colourless clear liquid
2	Colour	APHA	Max. 10	Max. 10
3	n-Butanol	Wt %	Min. 99.5	-
4	Iso-Butanol	Wt %	-	Min. 99
5	Aldehyde	Wt %	Max. 0.05	Max. 0.1
6	Acidity (as Acetic acid)	Wt %	Max. 0.01	Max. 0.01
7	Water	Wt %	Max. 0.1	Max. 0.2

2-ETHYL HEXANOL

2-ETHYL HEXANOL is one of our key petrochemical products under the Oxo-alcohol portfolio with a purity of min.99.5%. It is produced in two stages of hydroformulation and aldolisation processes. This product is widely used in various industry segments owing to its inherent characteristics that are indispensable for the production of various value-added intermediates and products.

2-ETHYL HEXANOL	PROPERTIES	STORAGE & HANDLING
• IUPAC Nomenclature 2 Ethylhexan - 1 - ol	• Clear colourless low volatile solvent with distinct odour.	• Recommended storage at ambient temperature.
• Technology Licensor Johnson Matthey Davy Tech., UK	• Miscible with most organic solvents but has limited miscibility with water.	• Recommended to transport in ISO Containers, Stainless steel/ MS lorries and HDPE drums.
• CAS No. 104-76-7	• Readily forms esters with various acids.	

Sr. No.	Parameter	Unit	Specification
1	Appearance		Colourless clear liquid
2	Colour	APHA	Max. 10
3	2-Ethyl Hexanol	Wt %	Min. 99.5
4	Acidity (as Acetic Acid)	Wt %	Max. 0.1
6	Aldehyde (as 2-Ethyl Hexanal)	Wt %	Max. 0.015
7	Water	Wt %	Max. 0.1

APPLICATIONS

- As resources for manufacturing of plasticizers.
- In the manufacture of raw materials for paints and coatings.
- As a low volatile solvent for resins, fats, waxes, dyes, insecticides etc.
- As feedstock for ethoxylates, 2-ethylhexyl sulphate (surfactant for electrolytes) etc.

Plasticizer

For 2 Ethyl Hexyl Nitrate, used as fuel additive

Solvent for resin, fats, wax etc.

Manufacture of 2 Ethyl Hexyl Acrylate (used in paints, coatings, adhesives etc.)

Lacquer chemicals in leather goods

BUTYL ACRYLATE & 2 ETHYL HEXYL ACRYLATE

BUTYL ACRYLATE & 2 ETHYL HEXYL ACRYLATE are top-notch petrochemical products with a purity of min 99.5%. Butyl Acrylate is produced by chemical reaction between Acrylic Acid and Normal Butanol. 2 Ethyl Hexyl Acrylate is produced by chemical reaction between Acrylic Acid and 2 Ethyl Hexanol. These products are used across various industry segments by virtue of their superior binding property, colour stability, flexibility, cohesive strength and weatherability characteristics.

PARTICULARS	BUTYL ACRYLATE	2 ETHYL HEXYL ACRYLATE	PROPERTIES	STORAGE & HANDLING
• IUPAC Nomenclature	Butyl Prop-2-enoate	2 Ethyl Hexyl Prop-2-enoate	• Lower APHA colour of the products indicates their colourless and transparent properties.	• Recommended storage temperature is in the ambient temperatures. High temperatures may lead to polymerization.
• Technology Licensor	Mitsubishi Chemical Corp, Japan	Mitsubishi Chemical Corp, Japan	• Miscible with ethanol, ether, acetone etc.	• Recommended to transport in ISO Containers, Stainless steel lorries and HDPE drums.
	141-32-2	103-11-7	• Acrylates provide superior resistance to moisture, UV rays and weathering.	• Acrylates are stored using Inhibitor to resist polymerization.

APPLICATIONS

As feedstock for chemical synthesis and in the manufacture of polymers, due to its easier reaction with a wide variety of organic and inorganic compounds. Butyl acrylate forms homopolymers and copolymers. Copolymers of butyl acrylate can be prepared with acrylic acid and its salts, amides and esters, methacrylates, acrylonitrile, maleic acid esters, vinyl chloride, styrene, butadiene etc.

Preferred raw material in reaction processes of emulsion and waterborne paints, binders and adhesives for pressure sensitive tape, sealants, textile binders, impact modifiers and construction material.

Paints and coatings

Sealants & dispersants

Binders & adhesives for pressure-sensitive tape

Printing ink

Acrylic polymers & polyacrylate

Sr. No.	Parameter	Unit	BUTYL A	2 EHA
1	Appearance	-	Colourless clear liquid	Colourless clear liquid
2	Colour	Alpha	Max. 10	Max. 10
3	Butyl Acrylate	Wt %	Min. 99.5	-
4	2-Ethyl Hexyl Acrylate	Wt %	-	Min. 99.5
5	Inhibitor (as MEHQ)	ppmw	Min. 10 to Max. 50	Min. 10 to Max. 50
6	Acidity (as Acrylic acid)	ppmw	Max. 50	Max. 50
7	Water	Wt %	Max. 0.1	Max. 0.1

We create value...

BPCL's I&C BU offers a wide range of product portfolios to the B2B segment. Apart from the supply of fuel, Solvents, Petrochemicals, feedstocks, the BU takes pride in providing technical consultancy for product & Application and Engineering Support. The Product offerings include light, middle, heavy distillates, and Petrochemicals.

BPCL continues to 'Energize Industries' in more ways than one.

I&C PRODUCT PORTFOLIO INCLUDES

FEEDSTOCK

- REFINERY & POLYMER GRADE PROPYLENE
- NAPHTHA
- KOLABFS
- SULPHUR

SOLVENTS

- HEXANE (FOOD GRADE/PHARMA GRADE/POLYMER GRADE)
- MINERAL TURPENTINE OIL
- SPECIAL BOILING POINT SPIRIT
- DE-AROMATISED SOLVENT D40, D60, D80 & D100

AROMATICS

- BENZENE
- TOLUENE

INDUSTRIAL FUELS

- LPG (BULK)
- SUPERIOR KEROSENE OIL
- LIGHT DIESEL OIL
- FURNACE OIL
- LOW SULPHUR HEAVY STOCK - PREMIUM
- PETCOKE

AUTOMOTIVE FUELS

- MOTOR GASOLINE
- HIGH SPEED DIESEL

BUNKER FUELS

- VERY LOW SULPHUR FUEL OIL
- HIGH FLASH HIGH SPEED DIESEL

BITUMINOUS PRODUCTS

- BITUMEN (VG 10, VG 30 & VG 40)
- EMULSIONS RS1 & SS1
- NATURAL RUBBER MODIFIED BITUMEN

PETKEM

TRUST

DEVELOPMENT OF PEOPLE

CUSTOMER CENTRICITY

ETHICS

INNOVATION

COLLABORATION

INVOLVEMENT

BPCL VALUES

TERRITORY OFFICES

https://www.bharatpetroleum.com/Our-Businesses/Industrial-and-Commercial/Connect-With-Us.aspx

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