



50 Years of Building a Brighter India



Aditya Birla Insulators



TAKING INDIA TO THE WORLD

A US \$43 billion corporation, the Aditya Birla Group is in the League of Fortune 500. It is anchored by an extraordinary force of over 120,000 employees, belonging to 42 nationalities. This team has enabled the Group to be at the "pole position" in most of the businesses it operates in around the world. Over 50 per cent of its revenues flow from its overseas operations spanning 35 countries.

In India, the Group was adjudged "The Best Employer in India and among the top 20 in Asia" by the Hewitt-Economic Times and Wall Street Journal study 2007. More recently, it won the "The Best Employer" in India by AON for the 3rd time in the last 7 years. The Aditya Birla Group has been ranked fourth in the world and first in Asia Pacific in the 'Top Companies for Leaders' study 2011, conducted by Aon Hewitt, Fortune Magazine and RBL (a strategic HR and leadership Advisory firm). The Group has topped the Nielsen's Corporate Image Monitor 2014-15 and emerged as the Number one corporate, the 'Best in Class', for the third consecutive year.

GLOBALLY THE ADITYA BIRLA GROUP is :

- A metals powerhouse, among the world's most cost-efficient aluminium and copper producers. Hindalco-Novelis is the largest aluminium rolling company. It is one of the three biggest producers of primary aluminium in Asia, with the largest single location copper smelter
- No.1 in Viscose Staple Fibre
- No.1 in Carbon Black
- The 4th largest producer of Porcelain Insulators
- The 5th largest producer of Acrylic Fibre
- Among the top 4 Cement producers globally (Ex-China)
- Among the best energy-efficient Fertiliser plants
- The largest Indian MNC with manufacturing operations in the USA, wherein 95 per cent of the workforce comprises of Americans.

IN INDIA:

- A top fashion (branded apparel) and lifestyle player
- The 2nd largest player in Viscose Filament Yarn
- The largest producer in the Chlor-Alkali sector
- The largest mobile telephony company in India
- A leading player in life insurance and asset management
- Among the top two supermarket chains in the retail business.

BEYOND BUSINESS – THE ADITYA BIRLA GROUP IS:

- Reaches out annually to 7.5 million people through the Aditya Birla Centre for Community Initiatives and Rural Development, spearheaded by Mrs. Rajashree Birla.
- Working in 5,000 villages globally.
- Focuses on: health-care, education, the girl child, sustainable livelihood, women empowerment projects, infrastructure and espousing social reform.
- Runs 42 Schools & 18 Hospitals.
- Set up the Aditya Birla India Centre at the London Business School.

Transcending the conventional barriers of business to send out a message that "We Care".



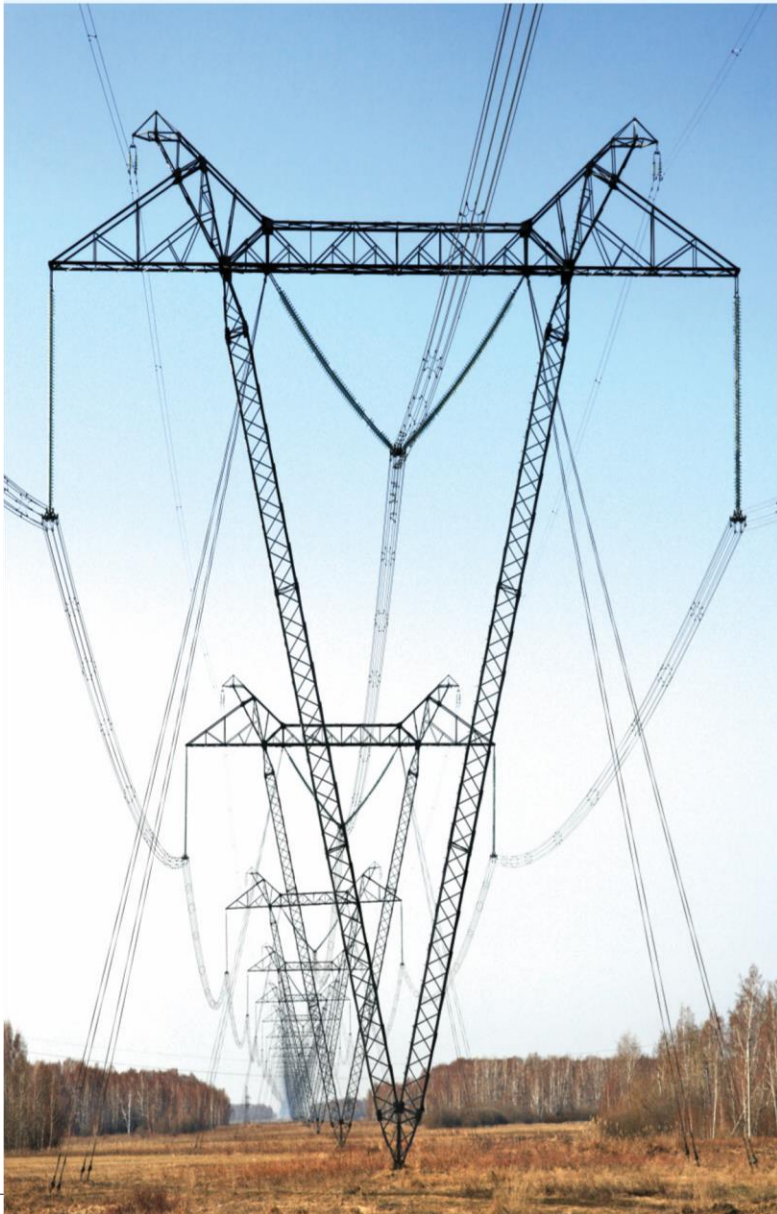
The Power of Reliability

Transforming Solutions

Being at the forefront of technological innovation, we know that transformations open up the gates for growth of new insights and opportunities of creativity and emergence. To empower our customers, we have built an intelligent and exciting mix of technology which delivers exceptional versions of performance bringing solutions that transform to action.

Aditya Birla Insulators delivers highly dependable products, making the company one of the most trusted names in the industry. Aditya Birla Insulators provides a comprehensive range of high-performance porcelain and composite insulators to the power industry in India as well as overseas. In a world where efficiency powers bottom lines, reliability becomes the key driver for productivity and performance. Consistent reliability can be achieved only through a focused approach and proficient implementation of world class practices. A subsidiary of Grasim Industries Ltd., Aditya Birla Insulators is India's largest producer of high-performance insulators.

Aditya Birla Insulators leverages the rich legacy of the Aditya Birla Group and the technical expertise accrued over five decades in the industry.



A Global Powerhouse

ABI is the country's largest, and among the top 4 global producers of porcelain insulators. Our extensive product range includes hollow, solid core, disc, pin/post insulators, finding applications in substation equipments and in transmission & distribution systems.

ABI is the preferred partner of global clientele that includes leading power utilities, national & international power equipment manufacturers, EPCs and turnkey contractors.

Our products have benchmarked world-class quality standards, and are exported to over 58 countries worldwide, with focused markets in Europe, America, Middle East, Far East and Africa.



The Driving Force

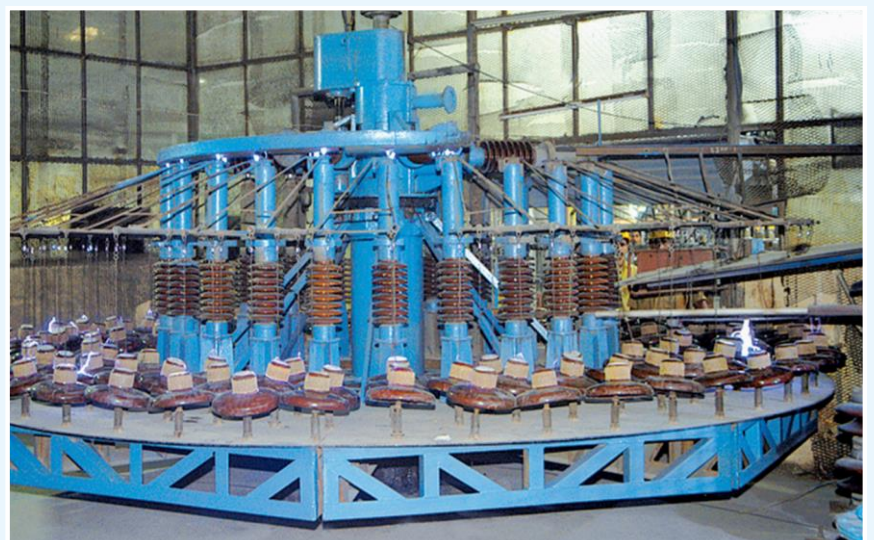
Commitment to consistent quality and reliability drives our systems. Our infrastructure comprises of two state of the art manufacturing facilities, one at Halol, near Vadodara, and the second at Rishra, near Kolkata. Both plants are ISO 9001 & 14001 accredited, with the Rishra plant also having the latest SA 8000 & OHSAS 18001 certification. Together, these plants cater to the full range of porcelain Insulators for Power equipment, T & D Lines and Railways.

The modern facilities are equipped with the new-age equipment to deliver precision and quality products. Strengthening the production line is a team of professionals and engineers geared with the latest technologies from across the world.

Our manufacturing process can be benchmarked with the worlds' best and is backed by stringent quality control and testing measures, to provide truly world class products.



State-of-the-art Testing Facilities





The Quality Shield

At ABI, quality is a continuous process that is measured in tangible value, and reinforces our systems to deliver excellence every time. Our quality policy is to collectively and continuously upgrade our processes, to conform to international standards, and achieve our progressive objectives to ensure absolute customer satisfaction.

Our Quality Objectives

- On time and consistent delivery of quality products
- Adherence to global standards and specifications
- Minimize errors and defects
- Provide technical and skill development training to all employees
- Protect and enrich the environment through sound environment management practices during manufacturing

The Insulators Operations & Training Academy – *Building A Brighter India*

As the leader in Electrical Insulators in India, we believe it is our responsibility to work with our customers (EPCs, Utilities) to ensure appreciation of what it takes to deliver a quality insulator and how to ensure it is handled / installed / maintained well in the field.

With this objective, in our 50th year of operations, we have launched a 1-2 day residential training programme at Rishra for our customers focusing on educating and upgrading the skills of engineers, purchasers, supervisors and workmen in the field of transmission line construction and operations.

Porcelain

Substation, Traction & Line Post Insulators

Insulators	Rating	Creepage Distance	Applicable Standards
Solid Core Station Post Insulators	Upto 1200 kV	25 & 31 mm/kV	IS, IEC, ANSI Specifications
Traction Insulators for Railways Electrifications	Upto 25 kV	25 & 31 mm/kV	IS, IEC, RDSO Specifications

Apparatus Porcelain Insulators	Applicable Standards
For SF6 Circuit Breakers, Instrument Transformers, Condenser Bushings, Lightning Arresters upto 800 kV. Maximum height in one unit construction upto 2600 mm. Maximum outer diameter 750 mm. Bore can be parallel, taper or barrel as per customer specific designs.	IS, IEC, European Norms 50062, ANSI



Porcelain

Transmission Insulators

Suspension Disc Insulators

- Profile : Anti Fog, Normal, Open Profile
- Mechanical Strength : Upto 420 KN
- Creepage Distance : Upto 690 mm
- Applicable Standards : IS, IEC, BS, ANSI, Australian Specifications

Pin Insulators

- Rating : Upto 69 kV
- Mechanical Strength : 10 KN
- Creepage Distance : Upto 1080 mm
- Applicable Standards : IS, BS, IEC ,ANSI, AS, VDE Specifications

Post Insulators

- Rating : Upto 36 kV & also upto 245 kV with Multi units
- Mechanical Strength : Upto 32 KN
- Creepage Distance : Upto 1050 mm, Single unit
- Applicable Standards : IS, IEC, ANSI Specifications

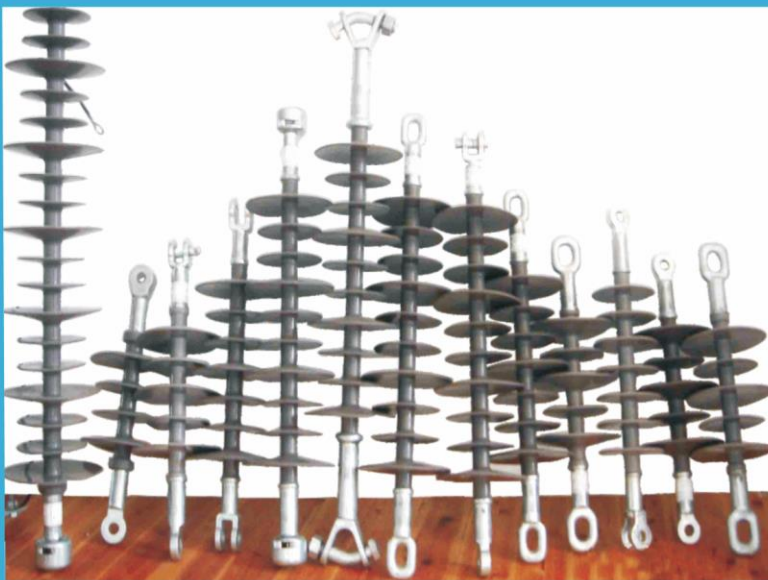


Composite Insulators

Transmission Longrod Insulators

- Voltage Rating : upto 420 kV
- Mechanical Strength : upto 160 KN
- Creepage Distance : upto 31 mm/kV
- Applicable Standards : IS, IEC, ANSI

Scaling upto 765 kV / 210 KN long rod insulators as well



Moving to Latest Technologies

Transforming an industry

Set up in 2009, Aditya Birla Insulators has scaled up its Composite Long Rod Insulator facility at Halol in recent years.

The facility is Powered by modern infrastructure and latest technologies, and competes with the world's best through our universally accepted product range. Strengthening the production line is a team of professionals and engineers geared with the latest technologies. Our manufacturing process can be benchmarked with the world's best and is backed by stringent quality control and testing measures, to provide for truly world class products.

Our whole range of Composite Insulators is Design & type tested from KEMA, Netherlands and CPRI/ ERDA India. The state of the art machines & technologies and vibrant quality system has given us wide acceptance & superiority over competitors. We have brought the rigor and experience of 50 years in porcelain insulators manufacturing, to develop robust processes and quality control systems for the Composite Insulators.

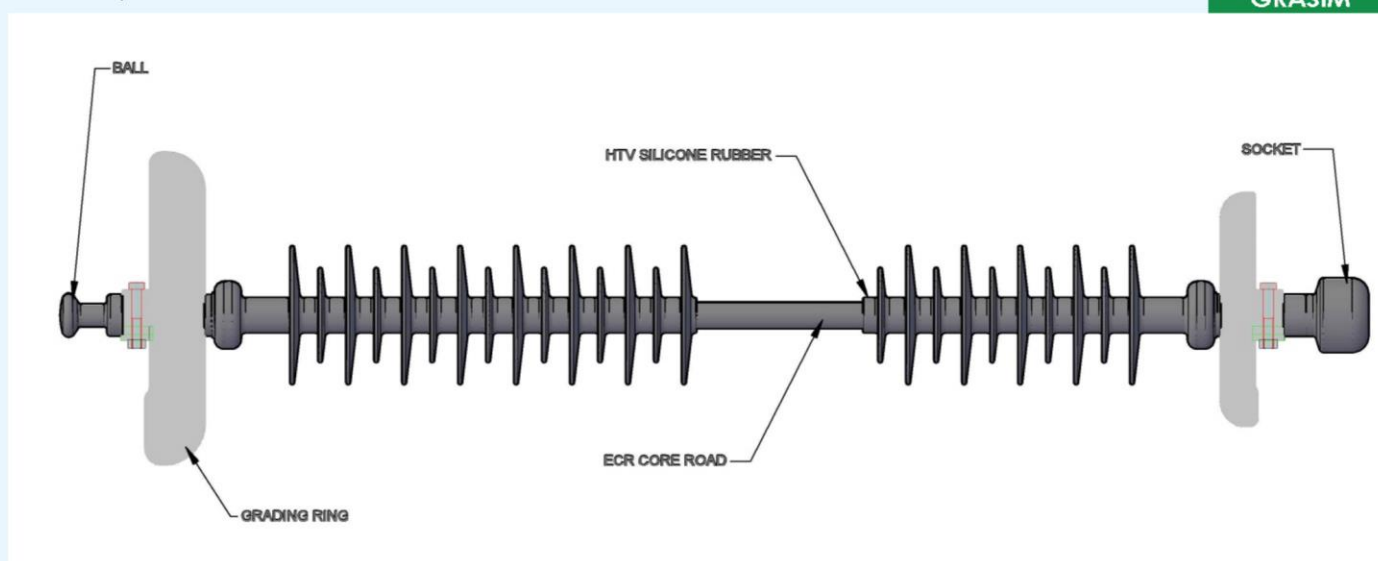
Our state of the art manufacturing facilities, located at Halol, near Vadodara, is ISO 9001 & 14001 accredited, and also having the latest SA 8000 & OHSAS 18001 certification.



Hydrophobicity



Composite Insulator construction



Transforming performance: Exceeding expectations

ABI very often predicts where the market will go and is ready & waiting to deliver value - Value that exceeds expectations.

Product Pluses

- **Impressive functionality and durability:** Delivers superior performance in salty coastal and other polluted areas / environments
- **Hydrophobic Function:** Silicone Insulators, due to molecular migration, maintain continuous surface hydrophobicity because of their water-repellent features and anti-tracking performance
- **Light weight:** Results in easy installation / transportation which reduces the overall cost of the T&D network
- **Non-Frangibility:** Not susceptible to shock or vibration; no damage is caused in case of explosions or accidents.
- **High Tensile Strength:** Due to special crimping technology and use of sophisticated SPMs, the metal-end fitting and the FRP rod are made to withstand high tensile loads
- **Resistance to Temperature Variance:** Insulators function within a wide range of ambient temperature from -40°C to $+60^{\circ}\text{C}$
- **Resistance to Vandalism:** Cannot be damaged easily and possess high durability and endurance values
- **Earthquake resistant:** In case of earthquakes, Silicone Rubber insulators are not prone to breakage thus ensuring uninterrupted power supply.

Transforming action: Putting excellence to work

Powered by the Semi automation of processes, a global standard distribution network that ensures quick and precise order fulfilment, and a smile-ready service, ABI's products insulate clients from instances of inferior quality literally.

On the record

- Insulators are manufactured as per IEC 60815 at a state-of-the-art facility in Halol - Gujarat, India
- Type Tested at CPRI, Bangalore for conformation to International Standards IEC 61109 / IEC 62217
- 5000 hrs. of multi stress Accelerated Ageing Test performed at KEMA lab / STRI Sweden / ERDA

- Also passed Vibration Test on its strings, Power Arc test, torsion test, High Pressure washing and many other tests
- In-house R&D recognized by Department of Scientific & Industrial Research, Ministry of Science and Technology, New Delhi, India
- Proven years of experience in manufacture of Porcelain Insulators / Composite Insulators for the Power industry
- Fully equipped in-house laboratory with measuring instruments of international standards

Silicone Rubber Insulators

Properties	Particulars
Dielectric Properties	Very high electrical resistivity and high dielectric strength that remains stable over a long period. Considerably slower electrical aging and thus a significantly longer service life than other insulating materials.
Resistance to UV Radiation	The stability of the Si-O backbone makes silicones permanently resistant to the UV portion of solar radiation Ideally suited for outdoor applications
Water Repellency (Hydrophobicity)	Water cannot spread on silicone rubber; pollution layers turn hydrophobic due to the hydrophobicity transfer effect Minimizes the risk of pollution flashovers in the case of dirty surfaces and thus provides considerably greater safety compared to conventional insulating materials
Low Flammability	Silicones only ignite at very high temperatures. In case of fire, they do not release any toxic or corrosive products.
Stability at High Temperature	Silicone Fluids have long term thermal stability upto 180°C, even in the presence of atmospheric oxygen



State-of-the-art Machines & Testing Facilities

Thermal Mechanical Test

The Thermal Mechanical test setup is a low / high temperature chamber operating between -40°C to +60°C with Microprocessor Controller and Computer interface. A Hydraulic system with power pack of 20 Ton capacity loading arrangements is provided to the chamber to conduct the design tests on Insulator as per IEC:61109.

Silicone Compound Test

Sample from each batch of high performance polymer compound is subjected to Tracking & Erosion test at 4.5kV and is also tested in ODR to get the full spectrum of curing characteristics at a particular temperature.

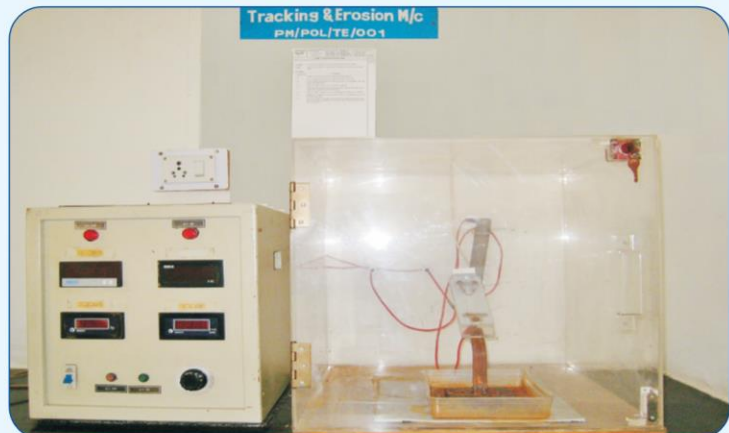
Mechanical Test

To ensure product durability and mechanical strength, ABI has a specially designed Universal Testing Machine with a tensile clearance and a computer interface. All the insulators can be tested as per IEC:-61109 standards as per customers' requirements of mechanical strength.

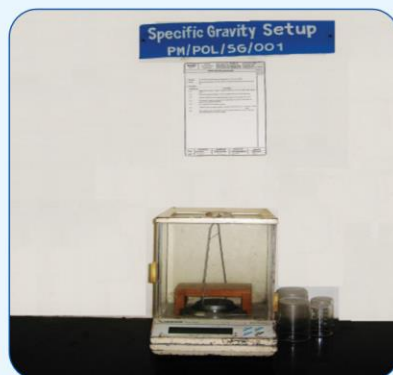
Other tests carried at our lab



RHEOMETER



TRACKING AND EROSION SETUP



SPECIFIC GRAVITY SETUP



COMPRESSION MOULDING MACHINE FOR RUBBER SLABS



RESISTANCE TO UV AND WEATHERING APPARATUS



WATER DIFFUSION SETUP

Certifications

1. All Design & Type test Performed at ERDA & CPRI India
2. 5000 hrs Accelerated Aging test Performed at KEMA, Netherlands / STRI / ERDA
3. ISO Certified
4. Approved Source of all Power Utilities in India



ELECTRICAL RESEARCH AND DEVELOPMENT ASSOCIATION
 ERDA Head Office: Industrial Estate, Vasundhara, Sector-15, Gurgaon, Haryana, India.
 ERDA - 4th Floor, Industrial Estate, Vasundhara, Sector-15, Gurgaon, Haryana, India.
 Fax: +91 (0129) 4230282
 E-Mail: erda@erda.org
 Web: http://www.erda.org

TEST REPORT SHEET 01 OF 02
 REPORT NO.: HNDP/122-471-12
 CUSTOMER'S REF. NO. & DATE: 122-471-12 (2010)
 DATE OF SAMPLE RECEIPT: 09/10/2011
 DATE OF TESTING: 09/10/2011

NAME & ADDRESS OF CUSTOMER:
 M/s. Aditya Birla Insulators
 (A Unit of Aditya Birla Group Ltd)
 Haveli Works, P. O. Hightower,
 Tal. Haveli,
 Dist. Panchmahal,
 (Gujarat) Pin: 389 320

SAMPLE DESCRIPTION:
 120 kV Common for 132 kV to 400 kV
 Silicon Composite Insulator (S & B Type)
 (1 No.)
 Drawing No.: 2015 236, Rev. No. 0 dated
 24.09.2011

TEST DETAILS:
 Design test (Tests on interfaces and connections of end fittings)
 1) Verification of dimensions
 2) Pre-assembly
 a) Surface test (visual)
 b) Thermal-mechanical pre-stress
 c) Water immersion pre-stressing
 3) Verification tests
 a) Visual examination
 b) Sleep front impulse voltage test
 c) Dry power frequency voltage withstand test

TEST SPECIFICATION:
 Per Test Procedure & Requirements:
 1) IEC: 61219-2/2006, Section 2.8
 2) IEC: 62217-3/2010
 3) As per customer's requirement

REMARKS:
 1) All of three samples conform to the requirement of Design test.
 2) No. of tests & a partial listing of the sequence of tests, on interfaces and connections of end fittings, specified for the conformity test are given below.
 3) Specified mechanical test is completed on 120 kV as embedded on the samples & mentioned in drawing.
 4) Certified drawing has been enclosed.

APPROVED BY: [Signature]
APPROVED BY: [Signature]

HIGH VOLTAGE DIVISION
CENTRAL POWER RESEARCH INSTITUTE
 P.O. NO. 02, INDHRAVATI, DELHI-110029, INDIA
 Phone: +91 (0)11-2658777 Fax: +91 (0)11-2658778
MEMBER STL

TEST REPORT (Continuation) Sheet 1 of 6
 Test Report Number: 4012011006488 Dated: 04-09-2011

Name & address of the customer:
 M/s. Aditya Birla Insulators,
 A Unit of Aditya Birla Group Limited,
 Haveli Works, P.O. Hightower, Dist. Panchmahal,
 Tal. Haveli, Pin-389 320, India.
 Ref No. HNDP/122-471-12 Dated: 14-07-2010

Name & address of the manufacturer:
 M/s. Aditya Birla Insulators,
 A Unit of Aditya Birla Group Limited,
 Haveli Works, P.O. Hightower, Dist. Panchmahal,
 Tal. Haveli, Pin-389 320, India.

Publication of Sample tested:
 Condition of the Sample on receipt:
 Type: New
 Designation: 120V Railway Design Sample of Silicon Composite Insulator
 Serial Number: 12
 Number of sample tested: 04
 Date of Test: 24-09-2010 to 17-10-2011
 CPRI Sample Code Number: HNDP/122-471-12
 Particulars of tests conducted:
 Test in accordance with standard Specification:
 Sampling plan:
 Customer's requirement:
 Deviation, if any:
 Name of the witnessing persons:
 Customer's representative:
 Other than customer's representative:
 Test administered with approval of the authority:
 Documents substantiating this report:
 No. of sheets:
 Number of photographs:
 Number of graphs:
 Number of sketches:
 Number of test result diagrams:
 Number of drawings:
 One: Copy No. 5 HNS 332, Rev. 00

TEST SIGNATURE: [Signature]
ADDITIONAL DIRECTOR: [Signature]



KEMA
REPORT OF PERFORMANCE
TDT 1331-10

OBJECT: Polymeric suspension insulator; 132 kV - 400 kV design sample for tracking and erosion test - 5000 hrs

TYPE: creepage distance 660 ± 5 mm

MANUFACTURER: Aditya Birla Insulators, Haveli, India

CLIENT: Aditya Birla Insulators, Haveli, India

TESTED BY: KEMA HIGH-VOLTAGE LABORATORY, Arnhem, the Netherlands

DATE OF TESTS: 11 June 2009 up to and including 22 February 2010

TEST PROGRAMME: Tracking and erosion test; Test at multiple stresses in accordance with IEC 62217 (2005) clause 9.3.3 and Annex B. The test was passed.

SUMMARY AND CONCLUSION: Report of Performance applies only to the object tested. The responsibility for conformity of any lot having the same designations with that tested rests with the Manufacturer. The report consists of 13 pages in total.

Signature: P. G. A. Buis, Managing Director, KEMA T&D Testing Services, Arnhem, 24 March 2010

Certificate of Registration
ENVIRONMENTAL MANAGEMENT SYSTEM - ISO 14001:2004

This is to certify that:
 Aditya Birla Insulators - Haveli
 (A Unit of Aditya Birla Group Limited)
 Opp. Larky Estate, Haveli, Gujarat Road
 Dist. Panchmahal, Tal. Haveli, Gujarat
 Gujarat - 389 320, India

Meets Certificate No.: EMS 184820
 and operates an Environmental Management System which complies with the requirements of ISO 14001:2004 for the following client:
 The Manufacture and Supply of Porcelain and Polymer Insulators for use in Electrical Systems.

For and on behalf of BSI:
 Gary Pickford, Global Assurance Director
 BSI, 389 Chiswick Lane, Uxbridge, Middlesex, UK
 Telephone: +44 (0)1875 930100
 Fax: +44 (0)1875 930101
 Email: bsi.enquiries@bsi.com
 Page 1 of 1

HARYANA VIDYUT PRASARAN NIGAM LTD.
 HVPNL
 Head Office: Sector-10, Gurgaon, Haryana, India
 Phone: +91 (0)1299-251111 Fax: +91 (0)1299-251112

SUBJECT: HVPNL TRANSMISSION LINES TO BE CONSTRUCTED IN SHIMLA DISTRICT (SHIMLA) AREA. APPROVED SPECIFICATIONS FOR SUPPLY OF 120KV TO 400KV SILICON COMPOSITE POLYMER INSULATORS.

Please refer your letter no. HVPNL/120KV/01/0007 dated 31.08.2012 and letter no. HVPNL/120KV/01/0011 dated 23.02.2012 as regard above with conditions of M/s Aditya Birla Insulators, Haveli, Dist. Panmahal (Gujarat) for supply of 120KV, 150KV and 220KV Silicon Composite Polymer Insulators has been supplied.

M/s Aditya Birla Insulators, Haveli, Dist. Panmahal (Gujarat) is hereby advised to supply 120KV, 150KV and 220KV Silicon Composite Polymer (Polymer) Insulators against the subject order number, subject to manufacture and supply of material solely as per specifications of HVPNL/120KV/01/0007 and HVPNL/120KV/01/0011 in P.O., without prejudice to respective responsibilities of M/s Aditya Birla Insulators, Haveli, Dist. Panmahal (Gujarat).

The acceptance is subject to the condition that M/s Aditya Birla Insulators, Haveli, Dist. Panmahal (Gujarat) will accept performance based Guarantee of 10 years for the first 5000 hours and 20 years for the remaining 5000 hours of the life of the insulators as per Proforma Order before offering the material for inspection. The P.O. will remain valid for two years beyond the date of commercial completion of insulators from which the insulators are to be used.

In case at any point of time, any abnormality is noticed, the approval to accept the material to be supplied by M/s Aditya Birla Insulators, Haveli, Dist. Panmahal (Gujarat), shall be withdrawn immediately and M/s Aditya Birla Insulators, Haveli, Dist. Panmahal (Gujarat) shall be liable to replace the defective material. This is without prejudice to terms and conditions of the P.O. Contract Agreement.

Signature: [Signature]
Signature: [Signature]

GUJARAT ENERGY TRANSMISSION CORPORATION LIMITED
 Head Office: Sardar Patel Vidyut Bhawan, Race Course, VADODGAH - 390 001.
 Telephone No. (022)2319582/84/85, (022)237462, Fax No. 2319506, (01)
 Email: gectco@getco.com, email: gectco@getco.com
 Ref. CE (P)/Proc./Vendor Regn./III/Aditya Birla - 123456 Date: 27.2.2012

REGISTRATION NO.-453

To: M/s. Aditya Birla Insulators, P.O. Hightower, Tal. Haveli, Panmahal.

Subject: Registration as a Vendor.
Ref : 1) Your letter no. ARIS/BRD/GETCO/2011-12 dttd. 30.11.2011

Dear Sirs,

With reference to the above, it is to inform you that subsequent to the factory inspection carried out by Mr. V.B. Harani on 12.02.2012, factory located at P.O. Hightower, Tal. Haveli, Panmahal, it is decided to enroll your firm as 'New Approved Vendor' for Supply and Manufacture of:

1. 90KN & 120KN, 220KV Silicon Rubber Composite Insulators.
2. 120KN & 150KN, 400KV Silicon Rubber Composite Insulators.

The above approval is subject to the following conditions.

- 1) The registration shall be applicable to GUJARAT ENERGY TRANSMISSION CORPORATION LIMITED only.
- 2) The registration is subject to having valid license for documents related to manufacture / supply of material. Please note that it shall be renewed sufficiently in advance before expiry of valid documents submitted by you and will have to submit with the tender documents.
- 3) The registration will not apply to any of your branches / offices.
- 4) The registration on the approved list does not guarantee the award of contracts.
- 5) If the performance will be found unsatisfactory by the company, the rights are reserved to delete your name even before the expiry of the registration period.

Our Manufacturing Facilities



Halol Plant, Gujarat



Rishra Plant, West Bengal



The Rewards of Excellence

Continuous excellence has its own rewards. Our performance has not only won us accolades from our clients, but also awards of excellence consistently. We have been receiving the Top Export/Special Export Award from Capexil since the past 20 years - an unprecedented record equaled by no one. ABI has also won awards for export excellence from the President and Prime Minister of India. ABI has recently been awarded "The Golden Peacock National Quality Award, 2007" - yet another proof of our unflinching commitment to quality and delivery.

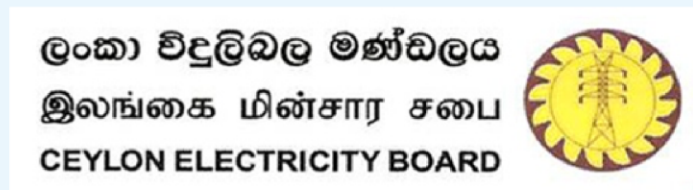




Approved Customers

Aditya Birla Insulators, being the global leader in Insulators, our products are well accepted by various utilities and EPC contractors.

Utilities



EPC Contractors & OEMs





Grasim Industries Ltd.

Unit - Aditya Birla Insulators

Marketing Office : 604, Ozone Tower, Opp. Vadodara Central Mall, Sarabhai Compund, Vadi - Wadi - Vadodara - 390 007 - Gujarat

Tel : +91 265 232 2940

E mail : abi.domestic@adityabirla.com, abi.export@adityabirla.com

Halol Works : P. O. Meghasar, Taluka Halol, Dist. Panchmahal, Gujarat 389330, India

Tel : +91 2676 221002, Fax : + 91 2676 223375

E mail : abi.substation@adityabirla.com

Rishra Works : P. O. Prabhas Nagar, Rishra, Dist. Hooghly, West Bengal 712249, India

Tel : +91 33 27623535,26729413, Fax : +91 33 26722705

E mail : abi.transmission@adityabirla.com

www.adityabirlainsulators.com