



SANDHYAFLEX

ISO 9001:2015 certified company

Conductive Rubber Sheet

TECHNICAL DATASHEET

SANDHYAFLEX Conductive Rubber Sheet is a high-performance engineered elastomeric product specifically designed to provide efficient electrical conductivity for static charge dissipation, grounding applications, EMI shielding, and industrial environments where the controlled transfer of electrical charges is essential. Manufactured from high-quality rubber compounds incorporating highly conductive fillers such as carbon black, graphite, and specialized conductive additives, these sheets are engineered to deliver consistent electrical conductivity, excellent mechanical strength, and long-term operational reliability.

Designed for applications requiring effective electrical conduction rather than insulation, Sandhyaflex Conductive Rubber Sheets offer low electrical resistance, excellent flexibility, superior durability, and dependable performance under demanding industrial and electrical operating conditions. The sheets are widely used in anti-static flooring systems, grounding applications, electronics manufacturing facilities, electrical equipment, power systems, and static-sensitive industrial environments.

SANDHYAFLEX INDIA PVT LTD has established itself as a trusted manufacturer of premium-quality conductive rubber products in India. Manufactured using advanced compounding technology and carefully selected raw materials, these sheets provide consistent conductivity, excellent physical properties, and long service life across a wide range of industrial, electrical, and electronic applications.

Overcoming Challenges, Delivering Excellence:

Industrial facilities, electronic manufacturing environments, power installations, and sensitive equipment areas frequently face challenges such as static electricity accumulation, electrostatic discharge (ESD), electromagnetic interference (EMI), grounding inefficiencies, and equipment damage caused by uncontrolled electrical charges. These issues can negatively impact equipment performance, product quality, operational safety, and system reliability.

Recognizing these challenges, SANDHYAFLEX developed its Conductive Rubber Sheet range using specially formulated conductive rubber compounds designed to provide reliable electrical conductivity, efficient charge dissipation, excellent flexibility, and superior durability. The material effectively conducts electrical charges away from sensitive equipment and personnel while maintaining excellent mechanical performance under continuous industrial use.

By delivering a reliable and high-performance solution, SANDHYAFLEX Conductive Rubber Sheets have become a preferred choice for electronics manufacturing facilities, anti-static flooring systems, power plants, electrical equipment manufacturers, grounding applications,

telecommunication facilities, EMI shielding systems, and industrial environments where conductivity and static control are critical.

Key Features:

- Manufactured from premium-quality conductive rubber compounds.
- Excellent electrical conductivity characteristics.
- Low electrical resistance for efficient charge transfer.
- Effective static charge dissipation.
- Suitable for ESD protection applications.
- Excellent grounding performance.
- Good flexibility and resilience.
- High mechanical strength and durability.
- Good abrasion and wear resistance.
- Resistant to moisture and humidity.
- Good ozone and weather resistance.
- Available in smooth or textured surface finish.
- Suitable for cutting, punching, die-cutting, and fabrication.
- Excellent dimensional stability.
- Available in multiple thicknesses and custom dimensions.
- Long service life under industrial operating conditions.

Applications:

- **Anti-Static Flooring Systems:** Used in ESD-safe environments to prevent static charge accumulation and protect sensitive equipment.
- **Electronics Manufacturing Facilities:** Protects electronic components, circuit boards, semiconductors, and assemblies from electrostatic discharge damage.
- **Grounding Applications:** Used in electrical grounding systems requiring reliable conductivity and charge transfer.
- **Electrical Equipment and Panels:** Suitable for conductive linings, grounding paths, and static control applications.

- **Power Plants and Substations:** Used in grounding systems and conductive applications within electrical installations.
- **Telecommunication Facilities:** Protects sensitive communication equipment from static electricity and electrical disturbances.
- **EMI/RFI Shielding Systems:** Assists in minimizing electromagnetic and radio-frequency interference in electrical and electronic systems.
- **Data Centres and Server Rooms:** Helps control static electricity around critical electronic infrastructure.
- **Industrial Workstations:** Suitable for conductive work surfaces and static-controlled production areas.
- **Battery Manufacturing Facilities:** Used where electrostatic control is essential for safety and product quality.
- **Defence and Aerospace Industries:** Suitable for specialized conductive and static-control applications.
- **Chemical and Pharmaceutical Facilities:** Used in areas where static charge accumulation may create operational hazards.
- **Electrical Testing Laboratories:** Used in testing environments requiring controlled conductivity.
- **Automotive Manufacturing:** Applied in static-control systems and conductive industrial flooring.
- **General Industrial Conductive Applications:** Suitable wherever reliable electrical conductivity and static dissipation are required.

History of Conductive Rubber Sheets:

- **Early 1900s** – Development of electrically conductive rubber compounds for grounding and specialized industrial applications.
- **1940s** – Growth of electrical and communication industries increased demand for conductive elastomeric materials.
- **1950s** – Carbon black-filled rubber compounds became widely used for conductive flooring and grounding systems.
- **1960s** – Expansion of electronics manufacturing increased the need for electrostatic discharge protection materials.
- **1970s** – Conductive rubber products became common in industrial safety and electrical applications.

- **1980s** – Improvements in conductive filler technology enhanced conductivity consistency and mechanical performance.
- **1990s** – Growth of semiconductor and electronics industries accelerated adoption of conductive rubber materials.
- **2000s** – Increasing awareness of ESD protection expanded applications in electronics, telecommunications, and manufacturing sectors.
- **2010s** – Advanced compounding and manufacturing technologies improved conductivity control, durability, and dimensional stability.
- **2020s** – Conductive Rubber Sheets continue to play a critical role in static-control systems, grounding applications, electronics manufacturing, power infrastructure, and industrial safety applications worldwide.

Colours and Their Applications:

For Conductive Rubber Sheets, colours are primarily used for identification, grounding system coding, anti-static area designation, project specifications, and customer requirements. The conductivity characteristics are determined by the conductive fillers and compound formulation rather than the colour itself.

Colour	Typical Application
Black	Standard conductive applications, grounding systems, anti-static flooring, and electrical equipment
Grey	Electronics manufacturing facilities, control rooms, and specialized conductive installations
Blue	ESD-safe workstations, telecommunication facilities, and project-specific applications
Green	Grounding systems, electrical safety areas, and industrial conductive applications
Red	Safety-designated conductive zones and specialized industrial applications
White	Laboratories, clean rooms, and static-sensitive environments
Custom Colours	Available as per client specifications and project requirements

Materials:

The Sandhyaflex Conductive Rubber Sheet shall be manufactured using high-quality conductive rubber compounds designed to provide excellent electrical conductivity, static charge dissipation, grounding performance, mechanical strength, flexibility, and long-term service reliability.

The compound shall consist of premium-quality natural and synthetic rubber blends combined with highly conductive carbon black, graphite, and other conductivity-enhancing additives to

achieve stable electrical conductivity and consistent performance throughout the service life of the product.

The sheets shall be manufactured using advanced mixing, calendaring, vulcanization, and finishing processes and shall be free from defects such as cracks, blisters, porosity, foreign inclusions, delamination, or surface irregularities that may adversely affect conductivity or durability.

RAW MATERIALS OF CONDUCTIVE RUBBER SHEETS BY SANDHYAFLEX				
S. No.	Raw Material	Image	Typical Grade / Example	Function / Purpose
1	Natural Rubber (NR) (High Purity)		<ul style="list-style-type: none"> Crepe Rubber RSS / Technically Specified Rubber High elasticity grade 	<ul style="list-style-type: none"> Provides elasticity & resilience Excellent fatigue resistance Good mechanical strength Base polymer for conductivity
2	Synthetic Rubber (SBR / NBR / EPDM)		<ul style="list-style-type: none"> SBR – Styrene Butadiene Rubber NBR – Nitrile Butadiene Rubber EPDM – Ethylene Propylene Diene Monomer 	<ul style="list-style-type: none"> Improves weathering & aging resistance Enhances oil, heat & ozone resistance Improves overall durability Suitable for varied environments
3	Carbon Black (Conductive Grade)		<ul style="list-style-type: none"> N330 / N550 / N660 Low Ash Conductive Carbon Black High Structure Carbon Black 	<ul style="list-style-type: none"> Provides electrical conductivity Ensures uniform conductivity Enhances mechanical properties Improves wear resistance
4	Graphite (Natural / Synthetic)		<ul style="list-style-type: none"> Natural Graphite Powder Synthetic Graphite High Purity, Fine Mesh 	<ul style="list-style-type: none"> Enhances electrical conductivity Improves thermal conductivity Reduces surface resistivity Ensures stable performance
5	Metal Powders (Optional)		<ul style="list-style-type: none"> Nickel Powder Silver Coated Copper Stainless Steel Powder 	<ul style="list-style-type: none"> Enhances conductivity for specific needs Improves EMI/RFI shielding Suitable for high performance Ensures low resistance paths
6	Conductive Fillers (Specialty)		<ul style="list-style-type: none"> Carbon Nanotubes (CNT) Graphene Conductive Polymers 	<ul style="list-style-type: none"> Provides high conductivity Improves EMI shielding Enhances performance in ESD Offers advanced conductivity solutions
7	Vulcanizing Agents & Crosslinkers		<ul style="list-style-type: none"> Sulphur Organic Peroxides Special Crosslinking Systems 	<ul style="list-style-type: none"> Enables vulcanization & crosslinking Improves mechanical strength Enhances heat & chemical resistance Ensures dimensional stability
8	Processing Aids (Additives)		<ul style="list-style-type: none"> Plasticizers Antioxidants Processing Oil / Stearic Acid 	<ul style="list-style-type: none"> Improves processability Enhances flexibility & workability Prevents premature aging Ensures smooth surface finish

MANUFACTURING PROCESS														
	→		→		→		→		→		→		→	
RAW MATERIALS SELECTION		MIXING & MASTICATION		CALENDERING (SHEET FORMING)		CUTTING TO SIZE		SURFACE TEXTURE FINISHING		VULCANIZATION / CURING		QUALITY INSPECTION		FINISHED CONDUCTIVE RUBBER SHEET

CONSISTENT CONDUCTIVITY	SUPERIOR DURABILITY	EXCELLENT ESD & EMI PERFORMANCE	COMPLIANT WITH STANDARDS	LONG SERVICE LIFE
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The material shall possess adequate resistance to moisture, humidity, ozone, weathering, mechanical wear, and normal industrial operating conditions while maintaining stable conductive properties.

Manufactured from high-quality conductive rubber compounds, Sandhyaflex Conductive Rubber Sheets provide reliable performance, efficient charge dissipation, consistent conductivity, and long service life across a wide range of electrical, electronic, and industrial applications.

Physical and Mechanical Properties of Sandhyaflex Conductive Rubber Sheet:

S. No.	Property / Test	Requirement
1	Product Type	Conductive Rubber Sheet
2	Material Composition	Conductive Rubber Compound with Carbon Black / Graphite Fillers
3	Colour	Black, Grey or Other Specified Colours
4	Manufacturing Process	Vulcanized Rubber Sheet
5	Shape	Flat Sheet
6	Surface Finish	Smooth Finish on Both Sides or as Specified
9	Tensile Strength	Good Mechanical Strength
10	Elongation at Break	Good Flexibility and Elongation Characteristics
11	Volume Resistivity	Conductive Range
12	Surface Resistivity	Conductive Range
13	Static Charge Dissipation	Excellent
14	Electrical Conductivity	High Conductivity Characteristics
15	Grounding Performance	Excellent
16	Moisture Resistance	Excellent
17	Water Absorption	Negligible
18	Flexibility	Excellent
19	Mechanical Durability	High
20	Weather Resistance	Good
21	Ozone Resistance	Good
22	Chemical Resistance	Good Resistance to Water, Mild Acids and Alkalis
23	Dimensional Stability	Good
24	EMI/RFI Shielding Capability	Suitable for Conductive and Shielding Applications
25	Typical Applications	ESD Flooring, Grounding Systems, Electronics Manufacturing, EMI Shielding, Electrical Equipment
26	Operating Temperature Range	-60°C to +185°C (
27	Availability	Standard and Custom Sizes Available
28	Maintenance Requirement	Low

Usage Tips:

- Select the correct **sheet grade (surface resistivity / volume resistivity)** based on whether the application is for **ESD grounding, EMI shielding, or conductive gasketing**.
- Match thickness to the real function: thinner sheets for **flexible grounding/contact layers**, thicker sheets for **mechanical durability and shielding interfaces**.
- Ensure compatibility with **operating voltage, grounding design, and electrostatic discharge requirements**.

- Verify that conductivity values meet **project specifications (ESD standards, electrical continuity requirements, or shielding targets)** before installation.
- Inspect sheets before use for **cracks, pinholes, contamination, or surface oxidation**, as these directly affect conductivity.
- Ensure **clean, dry, and oil-free contact surfaces** for stable electrical conduction.
- Avoid insulating barriers (dust, paint layers, grease films) between contact surfaces and conductive rubber.
- Use proper **clamping, conductive adhesives, or mechanical fastening** designed for low-resistance contact.
- Avoid overstretching or sharp bending that can disrupt conductive fillers and reduce performance.
- Installation should be handled by personnel familiar with **ESD safety and electrical grounding practices**.

Maintenance and Care

Maintaining conductive rubber sheets is less about “repair” and more about **preserving electrical continuity and surface integrity**:

- **Routine Inspection:** Check for wear, cracking, hard spots, or loss of flexibility that may indicate degraded conductivity.
- **Surface Cleaning:** Wipe using a soft cloth with mild, non-aggressive cleaners. Avoid solvents that may damage conductive fillers.
- **Avoid Contamination:** Prevent dust, oils, silicones, and insulating residues from forming on the surface.
- **Proper Storage:** Store flat or rolled (not sharply folded), in a cool, dry environment away from UV exposure.
- **Protect Contact Zones:** Areas used for grounding or contact should not be scratched or coated accidentally.
- **Environmental Control:** Avoid prolonged exposure to extreme heat, ozone, or corrosive industrial atmospheres unless the grade is rated for it.
- **Replace When Needed:** If resistance increases noticeably or surface damage appears, replacement is more reliable than repair.

Applications by Regions

India

- Widely used in **power distribution systems, switchgear panels, and grounding applications**
- Increasing use in **renewable energy systems and industrial automation setups**
- Common in **cable accessories and electrical protection systems**

China

- Strong adoption in **electronics manufacturing and high-volume ESD protection systems**
- Used in **industrial automation lines and electrical equipment assembly**
- Common in **large-scale OEM production environments**

United States

- Applied in **EMI shielding, aerospace electronics, and precision electrical systems**
- Used in **data centers, telecom infrastructure, and test laboratories**
- Growing demand in **advanced electronics and defense-related systems**

Europe

- Used in **strict ESD-controlled manufacturing environments**
- Common in **automotive electronics, rail systems, and industrial control panels**
- Strong focus on compliance with **electrical safety and environmental standards**

Middle East

- Used in **power plants, oil & gas control systems, and industrial automation**
- Suitable for **high-temperature and harsh environment electrical systems**
- Growing demand in **infrastructure modernization projects**

Africa

- Used in **utility expansion, substations, and industrial electrification projects**
- Increasing adoption in **telecom and power distribution upgrades**
- Important for **reliable grounding in unstable grid environments**

Southeast Asia

- Widely used in **electronics manufacturing and assembly plants**
- Growing adoption in **industrial parks and export-oriented manufacturing units**

- Increasing demand from **power infrastructure expansion**

Australia

- Used in **mining operations, heavy industry electrical systems, and substations**
- Applied in **rugged environments requiring stable grounding and shielding**
- Common in **industrial automation and energy sectors**

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