

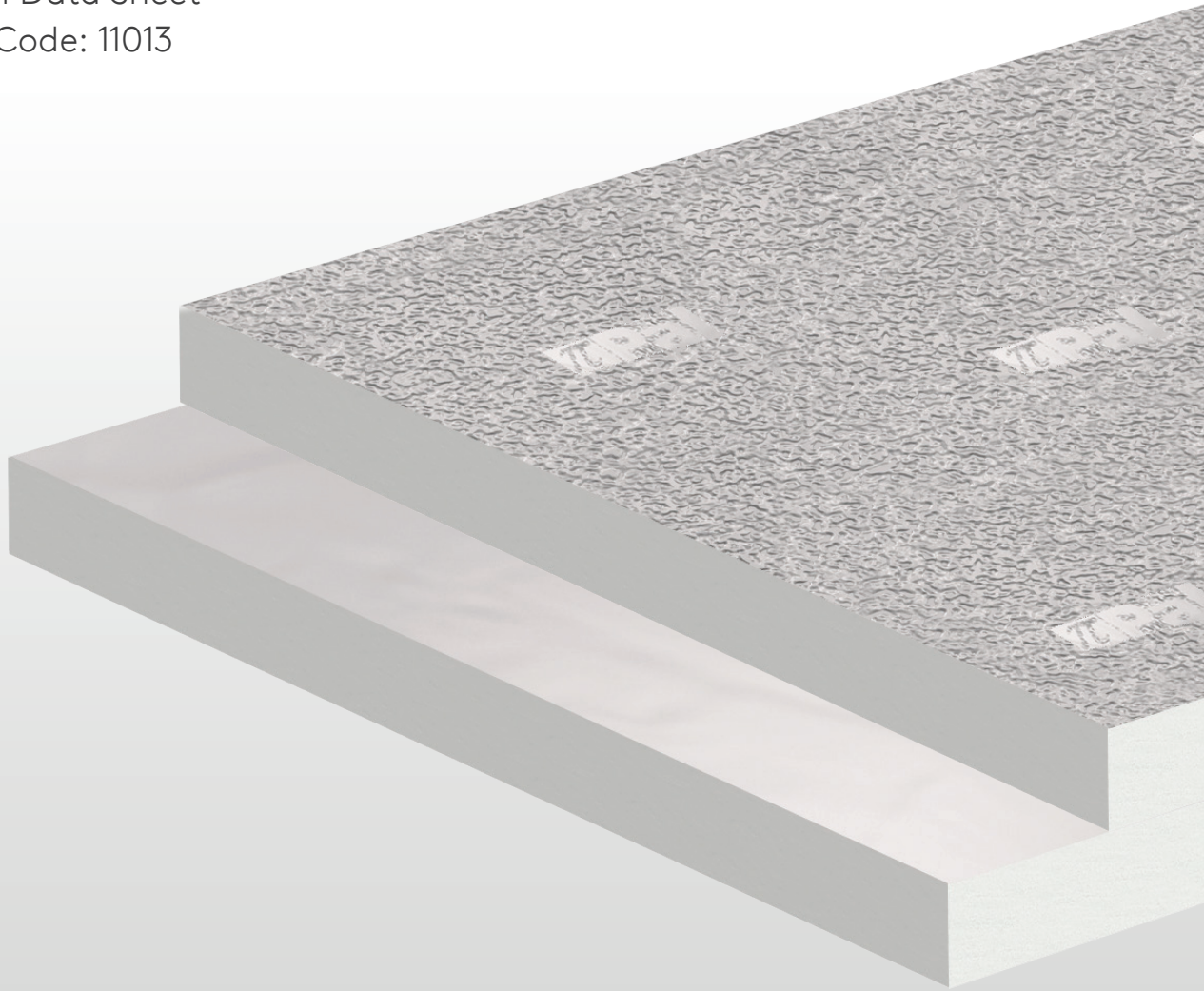
Insulation



Pal Duct[™] PIR System

Technical Data Sheet

Product Code: 11013



Fibre-free
Core




Kingspan[®]

Product Information

Kingspan PalDuct PIR Panels

Kingspan PalDuct PIR Panels comprises of rigid thermoset polyisocyanurate (PIR) insulation core, faced on one side smooth with outer face embossed aluminium foil. The fibre-free core is manufactured with a blowing agent that has zero ODP (contains no CFC and HCFC) and GWP ≤ 5 .

Property	Value
Product Code	11013
Product Thickness (mm)*	20
Panel Dimensions (mm)*	4000 x 1200
Min. Density (kg/m ³) (EN 1602:2013)	45
Thermal Conductivity (W/m.K) @ 10°C (ASTM C518-21)	0.022
Aluminium Foil Finish	Smooth/Embossed

* Standard manufacturing tolerance may apply, for more information contact Kingspan Insulation technical service.

Certifications & Compliance

Kingspan PalDuct PIR System is manufactured to the highest standards under a management system certified to ISO 9001: 2015 (Quality Management System), ISO 14001: 2015 (Environmental Management System), ISO 45001: 2018 (Occupational Health and Safety Management System) and ISO 37301:2021 (Compliance Management System).

Product Description

The Kingspan PalDuct PIR System is a pre-insulated rectangular HVAC ductwork system.

The system comprises Kingspan PalDuct PIR panels, joining system and a complete line of accessories to produce ductwork in sections up to 4 m long.

Operating Recommendations

It is recommended that ductwork fabricated from the Kingspan PalDuct PIR System is used for operation as supply, return, fresh and exhaust air ductwork for HVAC systems.

Application Suitability

The Kingspan PalDuct PIR System is designed for use in building services / HVAC applications. It is suitable for both new build and refurbishment projects in the residential, commercial, public, light industrial and leisure sectors. It is especially suitable for use on high specification projects where insulants with a fibre-free core may be preferred, for instance:

- the food, beverage and pharmaceutical industries;
- clean air and hygiene controlled environments;
- high relative humidity environments;
- swimming pools;
- non-ferrous applications; and
- sterile areas of hospitals and communication/server rooms in data centres.

Fabrication and Installation

The Kingspan PalDuct PIR System should only be fabricated by specially trained fabricators who have completed the specialised and comprehensive training course provided for the System.

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PalDuct™ PIR Adhesive

Technical Data Sheet



Product Information

Product Description

Kingspan PalDuct PIR Adhesive is a Solvent based adhesive with excellent quick grab, tack and suited for pre-insulated panels, fabrication, and many other uses.

Technical Details

Typical Properties	Value
Base Material	SBS thermoplastic rubber
Appearance	Medium Viscous Material
Colour	Pale yellow / brownish
Odour	No strong pungent odor
Viscosity	1300-1900 mPa.s
Processing Temperature	+5°C to +35°C
Density (g/ml)	0.9 - 1.0
Solid Content	42 ± 3%

Method of Application

Stir adhesive before use and make sure that surfaces to be bonded are clean, dry and free from dust and grease. Apply a thin even coat of adhesive to both surfaces. When surfaces become touch dry, align the board edges and bond under maximum pressure.

Shelf Life and Life Span

Product has a shelf life of 12 months from the date of production.

Safety and Health Precautions

- Apply the usual hygienic measures.
- Keep out from the reach of children. Highly flammable and harmful.
- Assure the condition is well ventilated and avoid of fire and static when storing and transporting.
- Please wear protective clothing, hat, respirator and plastic gloves.
- Disposal Consideration: Product remains and empty container must be disposed off in compliance with official, local regulations.

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Insulation



PalDuct[™] Sealant

Technical Data Sheet



Product Information

Product Description

Kingspan PalDuct Sealant is a single component gun grade sealant formulated by using acrylic emulsions and special. Hence, the product is easy to apply and efficiently seals joints between construction parts subjected to moderate stress. It is ready to use and seals internal and external joints in porous substrate such as concrete, plastics, asbestos, cement, brick work and wood. Kingspan PalDuct Sealant can be used for sealing all low movement joints.

Typical Areas of Use

- Pre-insulated ducting
- Around doors and window frames
- Around ventilation grills
- Joints between ceilings and wall
- Sealing of duct holes, etc.

Method of application

Surface should be clean, dry and free from oil grease or any other contamination. The sealant should be carefully applied using a normal caulking gun, ensuring that the material is forced well into the gap to obtain the correct joint and achieve good adhesion between surfaces. Necessary, tooling to be done within 5 minutes.

Handling and Storage

No special precaution has to be exercised. Always follow appropriate personal and industrial hygiene practices. Avoid direct contact with eyes, skin. Keep out of reach of children. Store in cool dry place, not over 25°C away from direct sun light and source of heat. PalDuct Sealant has a shelf life of 11 months from the date of manufacturing if stored in original unopened container.

Safety and Health Precaution

- Direct contact with uncured sealant irritates eyes and may irritate skin. Over exposure to vapour may irritate nose and throat. Avoid eye and skin contact. Use with adequate ventilation.
- Keep out of reach of children.

Technical Details

Typical Properties	
Composition	Water based Acrylic dispersion and fillers
Consistency	Smooth and pasty
Colour	White
Minimum joint width	6 mm

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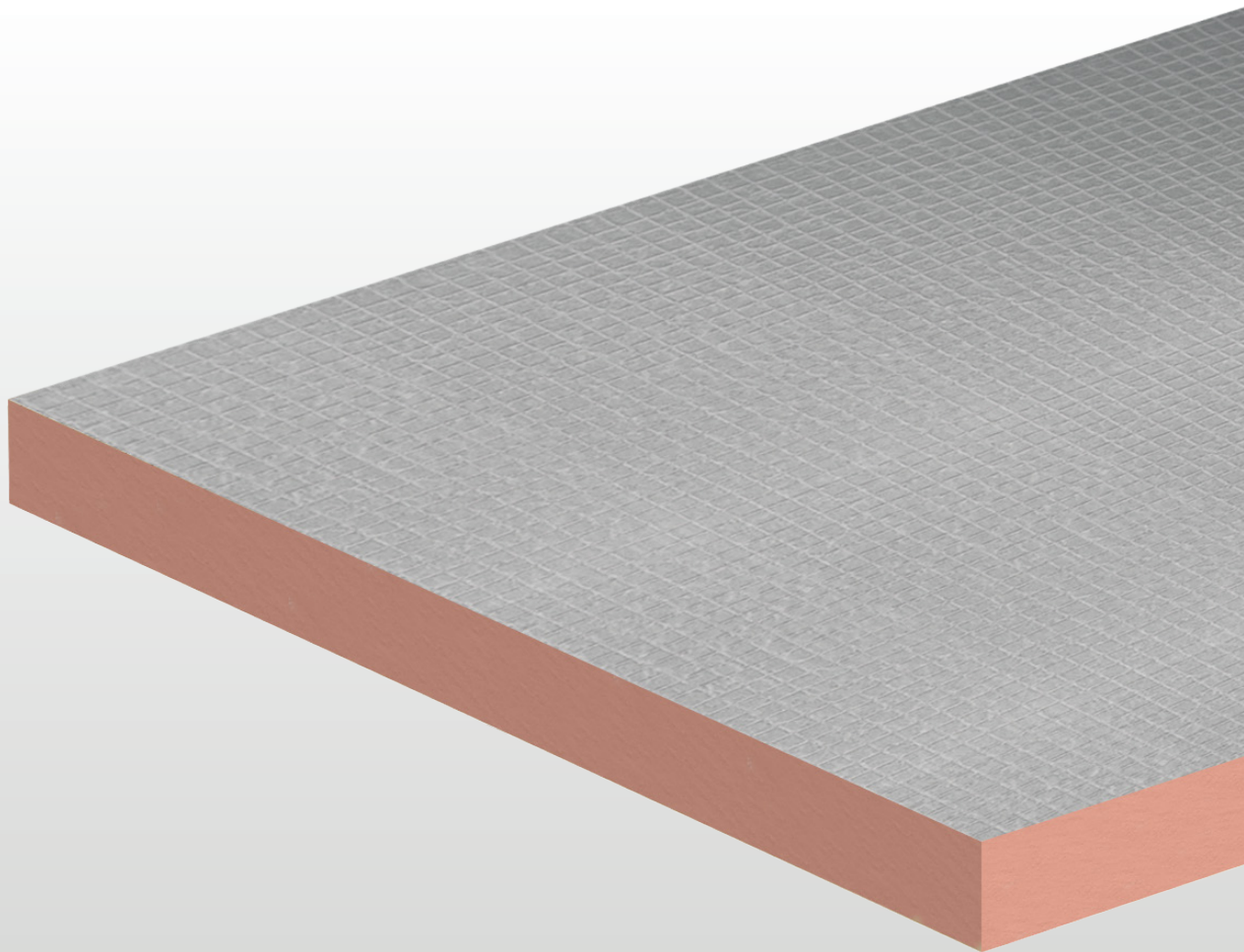
Insulation



PalDuct™ Phenolic System

Technical Data Sheet

Product Code: 2014



Product Information

Kingspan PalDuct Phenolic Panels

Kingspan PalDuct Phenolic Panels comprise a fibre-free rigid thermoset phenolic insulation core, faced on both sides with aluminium foil reinforced with a glass scrim. The core is manufactured with a blowing agent that has zero ODP (contains no CFC and HCFC) and GWP ≤ 5 .

Property	Value
Product Code	2014
Product Thickness (mm)*	20
Panel Dimensions (mm)*	4000 x 1200
Min. Density (kg/m ³) (EN1602-2013)	55
Thermal Conductivity (W/mk) @ 23°C (ASTM C518-21)	0.033

* Standard manufacturing tolerance may apply, for more information contact Kingspan Insulation technical service.

Compliance

Kingspan PalDuct Phenolic panels comply with standards shown in the table below.

Property	Classification / Value	Standard
Flame Spread Index (FSI) and Smoke Developed Index (SDI)	FSI/SDI: 25/50	ASTM E 84 / UL 723 (Surface Burning Characteristic)

UL (Underwriters Laboratories)

Ductwork fabricated from The Kingspan PalDuct Phenolic System is UL Listed as a Class 1 Air Duct, to Standard for Safety UL 181 (Factory Made Air Ducts & Air Connectors). The UL Listing requires that ductwork is fabricated using:

- 20-30 mm Kingspan PalDuct Phenolic panels;
- a 2 1/2" / 63 mm wide (minimum) aluminium foil vapour barrier tape that is UL Listed A-P to Standard for Safety UL 181 A (Standard for Closure Systems for use with Rigid Air Ducts); and
- Kingspan PalDuct Sealant and Palduct Adhesive.

Certifications

Kingspan PalDuct Phenolic System is manufactured to the highest standards under a management system certified to ISO 9001: 2015 (Quality Management System), ISO 14001: 2015 (Environmental Management System), ISO 45001: 2018 (Occupational Health and Safety Management System) and ISO 37301:2021 (Compliance Management System).

Operating Recommendations

It is recommended that ductwork fabricated from the Kingspan PalDuct Phenolic System is used for operation as supply, return, fresh and exhaust air ductwork for HVAC systems.

Application Suitability

The Kingspan PalDuct Phenolic System is designed for use in building services / HVAC applications. It is suitable for both new build and refurbishment projects in the residential, commercial, public, light industrial and leisure sectors. It is especially suitable for use on high specification projects where insulants with a fibre-free core may be preferred, for instance:

- the food, beverage and pharmaceutical industries;
- clean air and hygiene controlled environments;
- swimming pools;
- non-ferrous applications; and
- sterile areas of hospitals and communication/server rooms in data centres.

Fabrication and Installation

The Kingspan PalDuct Phenolic System is an advanced and innovative pre-insulated rectangular HVAC ductwork system. It comprises Kingspan PalDuct Phenolic panels, fabrication methods, coupling systems and a complete line of accessories to produce ductwork in sections up to 4 m long.

Ductwork fabricated from The Kingspan PalDuct Phenolic System should only be fabricated by specially trained fabricators who have completed the specialised and comprehensive training course provided for the System.

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Insulation



KDuct[™] Pre-Clad PIR

Ductwork for Outdoor Applications



Fibre-free
Core


Kingspan[®]

Introduction

Overview

The heating, ventilation and air-conditioning (HVAC) industry is in the midst of a dynamic era. However, air-distribution ductwork, a critical component of HVAC systems, has remained virtually unchanged since the early 1900s. Several factors have introduced the need to revolutionise HVAC ductwork. Energy use has continued to escalate, and thus the demand for energy reducing solutions has intensified. Requirements for clean air are becoming increasingly prevalent. Speed of construction has become a valuable asset. Floor space and headroom are under constant pressure.

What is Kingspan KDuct Pre-Clad PIR Technology?

KDuct Pre-Clad PIR is Kingspan's innovative and revolutionary pre-insulated ductwork system comprise of a fibre-free high performance rigid thermoset foil faced polyisocyanurate (PIR) insulation with a 0.76mm outer composite aluminium laminated facing, ideal for:

- External/Outdoor applications
- Plantrooms
- Risers
- Congested spaces
- Lightweight specifications

Advantages of Kingspan KDuct Pre-Clad PIR Technology

- Ultra-strength and rigidity
- Cost-savings over traditional exterior ductwork
- Easy to clean and hygienic.
- Clean air: fibre-free insulation core.
- Improved indoor air quality (IAQ)
- Easy to transport and install.
- Space-saving: flush-fitting installation possible.
- Low 'λ' value.
- Fast-track single-fix installation.
- No limits to duct sizes.
- High-compressive strength.
- Base material is impermeable to moisture.
- Environmentally friendly: CFC and HCFC free.



KDuct Pre-Clad PIR Panels

Kingspan KDuct Pre-Clad PIR panels comprise of a fibre-free high performance rigid thermoset foil faced polyisocyanurate (PIR) insulation with a 0.76mm outer composite aluminium laminated facing. The core is manufactured with blowing agent that has zero ODP (contains no CFCs and HCFCs) and GWP ≤5.

Property	Value
Insulant Thickness (mm)	30
Panel Dimensions (mm)	4000 x 1200
Min. Density (kg/m ³) (EN1602-2013)	60
Thermal Conductivity (W/m.K) @ 35°C (ASTM C518-17)	0.030

Certifications

KDuct Pre-Clad PIR is manufactured to the highest standards under a management system certified to ISO 9001: 2015 (Quality Management System), ISO 14001: 2015 (Environmental Management System), ISO 45001: 2018 (Occupational Health and Safety Management System) and ISO 37301:2021 (Compliance Management System).

Specialised Training & Technical Support

Kingspan Insulation provides specialised and comprehensive training courses to appointed distributors and clients in order to ensure that fabricators carry out the fabrication of Kingspan KDuct Pre-Clad PIR for any project directly on-site, assuring fast and more accurate execution of duct installation requirements.

Contact Details

Middle East

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Technical Service

Kingspan Insulation has one of the most technically advanced support services in the industry offering a full spectrum of advice, free of charge for all types of design projects.

The Kingspan Insulation technical team are continually updating their knowledge on building regulations, best practise, construction methods and the development of building materials to ensure the advice and services provided are always one step ahead.

Services available:

- U-value calculations;
- condensation/dew point risk calculations;
- advice on product selection and product data for the full range of Kingspan Insulation products;
- installation and fixing advice on all applications and products;
- specification and construction advice; and
- Tapered Roofing Design service.

Email: technical@kingspaninsulation.ae

Kingspan Insulation LLC reserves the right to amend product specifications without prior notice. Product thicknesses shown in this document should not be taken as being available ex-stock and advice should be sought directly from Kingspan Insulation LLC. The information, technical details and fixing instructions etc. included in this literature are given in good faith and apply to uses described herein. Recommendations for use should be verified as to the suitability and compliance with actual requirements, specifications and any applicable codes, laws and regulations. For other applications or conditions of use, Kingspan Insulation offers a Technical Advisory Service, the advice of which should be sought for uses of Kingspan Insulation products that are not specifically described herein or specifically required for your region.

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Insulation



Ideal Tape Co. Aluminum Foil Tape

Ideal Seal® 2000 Tape for Insulated Duct Closure Systems



Product Information

Introduction

Ideal Seal® 2000 is a performance grade aluminum foil tape coated with an acrylic adhesive system. Ideal Seal® 2000 is both UL 181A-P and UL181B-FX listed, for use on duct closure systems and is printed for identification.



Application

Ideal Seal® 2000 is a dual-use product designed for use as a vapor seal and to ensure the integrity of seams and joints on both fiberglass duct board and flexible duct systems.

Performance Features

- Conformable aluminum foil backing provides easy handling
- The acrylic adhesive system provides exceptional adhesion in a wide range of temperature, heat, and humidity conditions.
- Product is hand-tearable for easy application on the job site.



Property	Value
Adhesive	Acrylic
Roll Size	2.5" x 30 yards
Colour	Silver

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PalDuct[™] Adhesive

Technical Data Sheet



Product Information

Product Description

Kingspan PalDuct Adhesive is a Synthetic rubber based brushable, general purpose adhesive. The product exhibits excellent adhesion to most surfaces and has good heat resistance. Bonds may be made over a wide range of open times because of its fast flash off and long open time characteristics.

Kingspan PalDuct Adhesive is suited for pre-insulated panels, fabrication, and many other uses.

Technical Details

Typical Properties	Value
Base Material	SBS thermoplastic rubber
Colour	Light Yellow
Application	Spray & Brush
Solid Content	42 ± 3%
Odour	No strong pungent odor
Viscosity	1600±300 mpa.s
Density(g/ml)	0.90-1.0

Method of Application

Stir adhesive before use and make sure that surfaces to be bonded are clean, dry and free from dust and grease. Apply a thin even coat of adhesive to both surfaces. When surfaces become touch dry, align the bond edges and bond under maximum pressure.

Shelf Life and Life Span

Product has a shelf life of 12 months from the date of production.

Safety and Health Precautions

- Apply the usual hygienic measures.
- Keep out from the reach of children. Highly flammable and harmful.
- Assure the condition is well ventilated and avoid of fire and static when storing and transporting.
- Please wear protective clothing, hat, respirator and plastic gloves.
- Disposal Consideration: Product remains and empty container must be disposed of in compliance with official, local regulations.

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Insulation



Pal Duct™ Aluminum Foil Tape

Technical Data Sheet



Product Information

Product Description

A 22 micron (0.88 mil) high tensile strength aluminum foil backing, combined with a high performance synthetic rubber-resin adhesive, protected by an easy silicon release paper.

Features

- Aluminum backing provides excellent reflection of both heat and light.
- High-quality adhesive with super strong adhesion and holding power offers reliable and durable Foil-Scrim-Kraft Facing joints and seams sealing in HVAC ductwork application.
- Low moisture vapour transmission rate makes an excellent vapour barrier.
- Service Temperature ranges from -20°C to 80°C (-4° to +176°F)

Typical Physical Properties

Property	Metric	English
Backing Thickness	22 Micron	0.88 Mil
Total Thickness	55 Micron	2.20 Mil
Adhesion to Steel	18 N/25mm	65 Oz./In.
Elongation	3.0%	3.0
Service Temperature	-20 ~ +80°C	-4 ~ +176°F
Applying Temperature	+10 ~ 40°C	+50 ~ 105°F

Typical Application

HVAC industry for joining and sealing Foil-Scrim-Kraft Facing laminated fiberglass blanket/duct board joints and seams, joining and sealing flexible air duct seams and connections. May also be used for other industrial uses requiring a tape with these characteristics and benefits.

Product Form and Size

- 50mm (2")
- 75mm (3")

Storage and Shelf Life

One year when stored at 21°C (70°F)/50% relative humidity out of direct sunlight.

Surface Preparation

It is essential, as with all pressure-sensitive tapes, that the surface to which tape is applied must be clean, dry, free of grease, oil or other contaminants.

Product Use

The user should evaluate the product to determine whether it is fit for a particular purpose and user's method of application. Best result will be obtained when applied to a clean, dry surface with a suitable pressure between +10 ~ +40°C (+50 ~ +105°F).

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