OXECO

KOTEFAST™

Chemical surface preparation prior to painting of composite substrates

- Removes the need for sanding
- Increases throughput
- Decreases defects
- Reduces total cost

Introduction

Our KOTEFAST™ chemical thin coating is used as a surface preparation prior to painting or lacquering of polymer composite substrates.

KOTEFAST™ eliminates the need for sanding by creating a chemical bond between the substrate surface and the paint, primer, or lacquer.

It can be applied by spray-gun or roller and then cured in an oven or with infra-red.

KOTEFAST™ has achieved the highest level of industry standards for paint adhesion and surface finish.

Front bumper parts for Ford trucks treated with KOTEFAST™

Benefits

KOTEFAST™ significantly reduces overall process cost for paint preparation, as well as creating a healthier, cleaner manufacturing environment. In addition, KOTEFAST™ has also provided the following benefits for customers:

10x
paint production capacity, without the need for additional people or space

90%
reduction in surface preparation time

80%
reduction in product defects by eliminating dust imperfections

8to1
increased productivity equates to a labour reduction of eight people to one person

KOTEFAST™ SP200 Components A (left) and B (right)

How It Works

KOTEFAST™ is a liquid treatment that is easily applied with standard spray equipment. It is *not* a chemical etch, it contains no harmful solvents, and leaves no aromatic hydrocarbons or other similar chemicals.

KOTEFAST™ works in a unique way, by chemical insertion into the molecular chains of the composite matrix and crosslinking to the paint or coating applied on top of the treatment.

Who It Is For

KOTEFAST™ is intended for use on a wide range of composite materials and so can be used across a variety of industries, including **automotive, wind power, marine, rail, aerospace**, and many more.

KOTEFAST™ is already qualified with large multinational commercial vehicle OEMs, including **Mercedes-Benz, Daimler, JCB, and Ford**, and is registered on the International Material Data System (IMDS).

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TECHNICAL DETAILS

Volumes Required

KOTEFAST™ is supplied as two active components, Component A and Component B. The third component, a thinner, is not supplied and needs to be sourced locally.

Component A	Amber solution
Component B	Opaque solution
Thinner	Acetone (98% or higher)

Alternative thinners may also be used, such as Ethyl Acetate (CAS: 141-78-76) or Methyl Ethyl Ketone (CAS: 78-93-3).

An alternative product, KOTEFAST™ SP100, which uses water as the thinner, is also available.

KOTEFAST™ is mixed in the following ratio by volume:

Component A	:	1
Component B	:	1
Thinner	:	10

12L of the mixed solution will coat approximately 150m^2 of surface area.

Therefore, for example, to coat 10,000m^2, this would require 800L of mixed KOTEFAST™ solution. This would require 66.67L of Component A, 66.67L of Component B, and 666.67L of thinner.

Typical Physical Properties

Colour before curing	Light yellow
Colour post curing	Colourless
Shelf life of components	6 months
Pot life once mixed	8 hours

Standard Package Sizes

Standard Package Sizes	Packaging Material
1L	Can
5L	Can
10L	Can
25L	Can
200L	Drum

Our packaging is certified to UN standards.

Testing

Surface treatments using KOTEFAST™ pre-treatment have been tested and qualified with a number of OEM and industry organisations. KOTEFAST™ has achieved excellent results on the following tests:

- ISO 21194:2019
- ISO 2409
- ISO 13523-27
- Cross-Hatch (ASTM D3359)
- Water Jet
- Salt Spray
- Condensing Humidity

The results of these tests, however, depend on the specific substrate, primer / lacquer, and application process. Therefore, it is the customers responsibility to conduct sufficient testing to ensure it is qualified for their specific application.

Health and Safety

Our KOTEFAST™ surface treatment is safe when the recommended precautions are taken. It is important to read and understand the Safety Data Sheet (SDS) before use, as it contains information on potential health, physical and environmental hazards, handling instructions, and first aid recommendations. The SDS can be provided upon request.

Suitable Materials

Typically, KOTEFAST™ is intended for use on thermoplastics, thermosets, and other materials including:

- Epoxy
- Polyurethane
- Polyester
- Vinylester
- Polyamide
- Gelcoats
- SMC, BMC, RTM
- Pore Fillers

Limitations

Materials: KOTEFAST™ is not optimal for silicones, polypropylene, elastomers, fluorinated thermoplastics, or metals.

Moulds: Mould type and quality is very important. Our chemistry is not made to cover pinholes or other large imperfections.

Curing: KOTEFAST™ must be cured above 80°C (176 °F).

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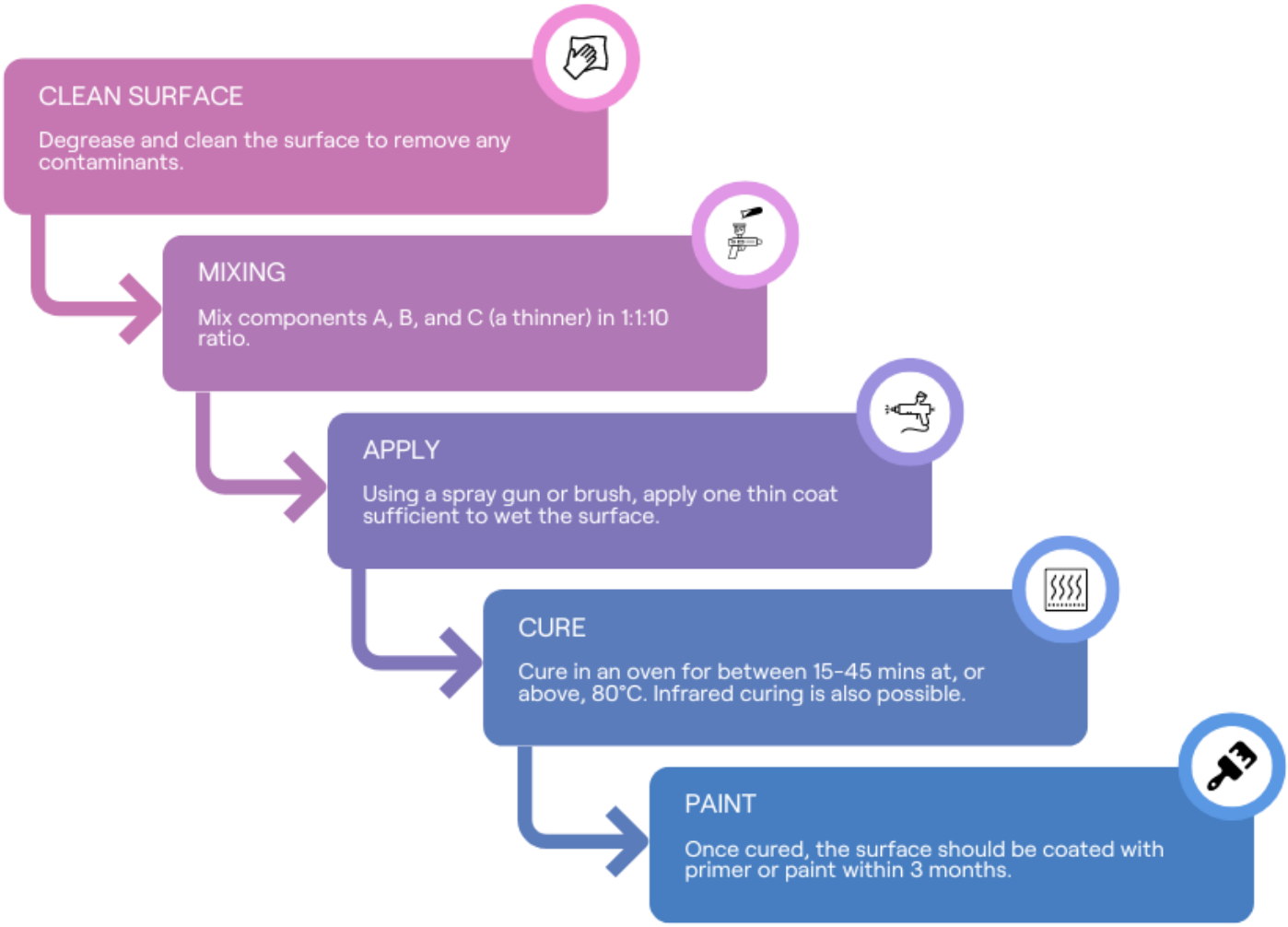
APPLICATION GUIDELINES

Application Process



Definitions

Pot-Life: The limited time period, after all of the KOTEFAST™ components have been mixed, within which the solution must be used. The pot life for KOTEFAST™ surface treatment is 8 hours. Do not treat the part with the solution after the pot-life has expired.

Curing: The chemical process during which KOTEFAST™ fully crystallizes and attains its final properties. It is noted that the curing profile of KOTEFAST™ is different to a resin. KOTEFAST™ will only begin to activate once it has reached the minimum activation temperature of 80°C (176 °F). Below this temperature, KOTEFAST™ will not cure, regardless of the amount of time at the lower temperature. Maximum adhesion and performance is achieved when cured at 100°C (212 °F) or greater.

Water-Break Free Surface: A surface that maintains a continuous water film for a period of at least 30 seconds after having been spray- or immersion-rinsed in clean water at a temperature below 38°C (100°F).

Mist Apply: Use the minimum amount of KOTEFAST™ solution required to wet out the entire surface. This will minimise the amount of excess material that will run off the part and possibly accumulate during application. Do not flood or spray drench the solution, as this will lead to inferior performance.

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Manufacturing Controls

- Hardware that is being processed should be handled with minimal contact area and protected from oil, grease and fingerprints. All parts should be degreased and cleaned to remove any contaminants prior to KOTEFAST™ application.
- The spray equipment used for applying KOTEFAST™ solution should conform to the set-up requirements listed in the application steps process below.
- The air used for drying, air-water rinsing, and blow-off should be treated and filtered so that it is free of moisture, oil, and solid particles.
- Recommended temperature for application is between 15 °C (59 °F) and 30 °C (86 °F).

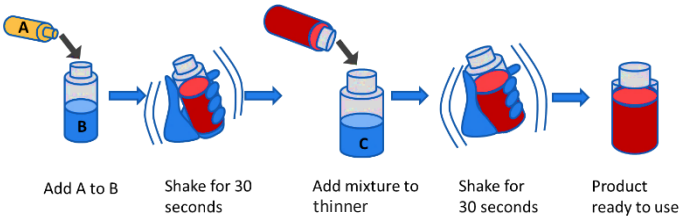
Application Steps

1. Surface Preparation

- Degrease and clean the surface to remove any contaminants or release agent.
- Check for water-break-free surfaces (see definitions). If surfaces are not water-break-free, repeat the cleaning process.
- Once the surface under treatment has been cleaned, it must never be touched with bare hands.
- Salts, moisture, and oils can be transferred to the prepared surface which may result in coating failure.
- It is particularly important that hand protecting barrier creams not be used.

2. Mixing

- Add 1 part Component A to 1 part Component B by volume.
- MIX WELL.
- Add A/B mix to 10 parts thinner.
- MIX WELL.
- Once mixed, the solution may be applied immediately.
- Pot-life is 8 hours when mixed.



3. Spray Gun Set-Up

Spray-Gun Set-Up	Application Air Pressure
1.2 – 1.4mm HVLP Gravity	HVLP – 29 psi (2.0 bar) at inlet.
1.2 – 1.4mm Compliant	Consult manufacturers' specifications.

4. Application

- Spray one thin coat (in a misting application) sufficient to wet the surface.
- Application rate is 80ml per $1m^2$.
- Spraying must be carried out at a temperature between 15 °C (59 °F) and 30 °C (86 °F).
- Do not apply a thick coat typical of paint or use multiple passes and take care to minimise overlaps.
- Runs are an indication that the application is too heavy and that equipment or technique should be adjusted.
- In the event of a poor coating KOTEFAST™ can be removed by wiping the surface with acetone.

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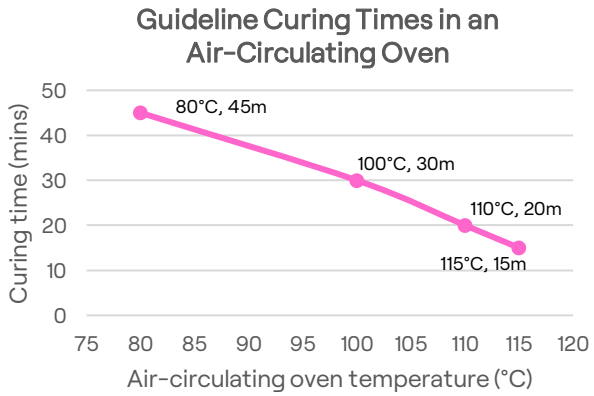
5. Curing

- The curing profile of KOTEFAST™ depends on the specific substrate and oven used. Therefore, it is the customer's responsibility to test and qualify the curing process using their equipment and processes. OXECO may assist in this process to ensure the product can be used effectively.
- As a guideline, the curing profile for KOTEFAST™ in a convection oven may be similar to the below:

80 °C (176 °F)	45 minutes
or 100 °C (212 °F)	30 minutes
or 110 °C (230 °F)	20 minutes
or 115 °C (239 °F)	15 minutes



- It is noted that the temperatures stated above relate to the temperature of the surface of the material. This may differ from the ambient temperature of the oven.
- Maximum adhesion and performance is achieved when cured at 100 °C (212 °F) or greater.
- Introduction of thermal mass (stands, trolleys, mounts etc.) will affect cure time.
- Infrared curing is possible on flat or non-complex parts. Please contact OXECO for further details.
- Failure to cure correctly will result in inferior performance and/or adhesion failure.

6. Handling

- Once the surface under treatment has been cured, it must not be touched with bare hands. Salts, moisture and oils can be transferred to the prepared surface which may result in failure of subsequent coating.
- Wipe with microfibre cloth if required.
- DO NOT USE SOLVENTS ON TREATED SURFACE.

7. Coating

- Once KOTEFAST™ is cured the surface may be immediately coated with primer, paint or lacquer.
- Use full primer, paint or lacquer system. KOTEFAST™ is not a primer.
- KOTEFAST™ treated surface remains active for up to three months after surface preparation and before coating.
- If parts are stored before coating keep clean and dust free.

Disposal

KOTEFAST™ should be disposed of in a non-halogenated waste container. Disposal should be via an approved contractor and should take full account of local regulations.

Storage

For best results, store all KOTEFAST™ components in a cool dark place (below or at 25 °C (77°F)). Store the components in the original containers. Typical shelf life is 6 months. Refer to product label for expiry date.

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