Icopal
Torchsafe TA

Flame free built up bitumen waterproofing system

Product Guide and Application Manual

ICO_INSTAL_25_100000070_V1

Part of BMI

icopal

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Introduction

This document serves as guidance for the installation of the TorchSafe TA waterproofing system.

Adherence to the relevant technical rules, as published in standards and regulations, as well as to the operatives protection and safety is obligatory. The handling instructions and notes on labels and safety data sheets for Icopal primers, adhesives and accessory materials are to be observed.
For further guidance concerning materials used as part of the TorchSafe TA system, please refer to 'Icopal Reinforced Bitumen Waterproofing - A guide to handling, installation, maintenance and disposal.

The system cannot be installed without its own components.

Temperatures: Please note that the speed of installation, particularly where hot air welding is taking place, can be adversely affected by colder ambient and substrate temperatures.

Suitable Substrates

Plywood/OSB 3

Plywood should comply with BS EN 636 clause 8 regarding exterior use. Any preservative treatments used on the plywood must be compatible with the waterproofing system. Oriented Strand Board (OSB) must be type OSB/3 conforming to the current version of BS EN 300. Boards must be protected from rain/water and remain dry. The minimum board thickness for plywood and OSB/3 is 18mm.

Concrete

Reinforced concrete roof decks should be designed to current relevant standards (such as BS EN 1992-1-1) and must have a smooth, level even finish without any depressions, deflections or negative/back falls. The surface should be smoothed with a wood float or similar finish (a power float or steel float should not be used) to provide an even surface free from ridges and hollows. Prior to the application of the new Icopal waterproofing system, any concrete laitance or contaminants on the surface which may affect adhesion should be removed using appropriate methods. Voids, cracks, holes, or damage to the concrete surface must be repaired before application of the new waterproofing system. Prior to commencement of works it is recommended that an adhesion test on all roof areas to receive the new waterproofing system is conducted to ensure the specified system has the required adhesion once installed. The new concrete should be given adequate time to dry out prior to installing the waterproofing system, typically this is 28 days

Profiled Metal Decking

A profile metal deck does not provide a continuous supporting upper surface for the direct application of the waterproofing system, therefore the crowns should be a minimum of approximately 50% of the total area. Profiled metal decking should be manufactured either in galvanised steel to the current version of BS EN 10147. All profiled metal decking must be installed in accordance with the manufacturer's instructions.

Alternative substrates are possible for use with the TorchSafe TA system. Please consult Icopal Technical Services for further information.

Packaging, delivery and storage of membranes and accessory materials

Bitumen membranes

Reinforced bitumen membrane roofing should be stored upright on clean dry level surfaces, undercover (out of direct sunlight) and clear of the ground.

The same protection should be given to materials temporarily kept outdoors or on the roof during construction.

Storage temperatures should be between 0°C and 30°C. Refer to BS 8000-4 (Section 2.1.2.2) for further information.

Insulation

Insulation boards are supplied in shrink wrapped polythene which will only provide limited protection during unloading and handling.

Boards should be stored inside a building where possible. If outside storage cannot be avoided, boards should be stored flat, raised off the ground and tarpaulins or heavy gauge waterproof sheets should be used to cover the boards at all times.

The delivery packaging alone cannot under any circumstances be relied upon to provide the required protection from moisture and inclement weather. Insulation boards that have been allowed to get wet must not be used under any circumstance.

Primers and adhesives

Please note the storage conditions and shelf life indications on the container labels

Adhesives must be stored at temperatures between 5 - 25 °C depending upon the product (consult the individual product material safety datasheet for specific storage instructions).

All flammable materials shall be stored in a cool, dry area away from sources of heat, sparks and open flame. Follow the precautions outlined on the label of the container.

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System products at a glance

TorchSafe TA Mineral Capsheet	Product code: 10001223
Effective thickness (mm)	4.3mm
Roll Size (m)	7 x 1m
Upper Surface	Mineral Chippings - Charcoal
Lower Surface	Self-Adhesive bitumen - with release sheet

Pyrobar Underlay	Product code: 10001355
Effective thickness (mm)	3mm (Partially Bonded)
Roll Size (m)	10 x 1m
Upper Surface	Syntan Coating
Lower Surface	Self-Adhesive bitumen - with release sheet

TorchSafe TA Detailing Underlay	Product code: 10001356
Effective thickness (mm)	3mm (Fully Bonded)
Roll Size (m)	10 x 1m
Upper Surface	Syntan Coating
Lower Surface	Self-Adhesive bitumen - with release sheet

TorchSafe TA VCL Sand	Product code: 10001443
Effective thickness (mm)	3.5mm
Roll Size (m)	15 x1 m
Upper Surface	Sand
Lower Surface	Self-Adhesive bitumen - with release sheet

Thermazone Roofboard Insulation	
Thickness range [mm]	30 - 160mm
Board Size [m]	1200 x 600mm 1200 x 1200mm
Upper Surface	Perforated Glass Tissue
Lower Surface	Glass Tissue

Accessories	Icopal SA Primer	Icopal SA Spray Primer	Icopal Insulation Spray Adhesive
Container Size	5L & 25L	17kg	22L
Area coverage*	4-8m² per litre	Up to 300m²	Up to 300m²

*Coverage rates can vary depending on substrate porosity and temperature.

Note: Rockwool HardRock Multi-Fix (DD) can be used as an alternative to Thermazone Roofboard insulation

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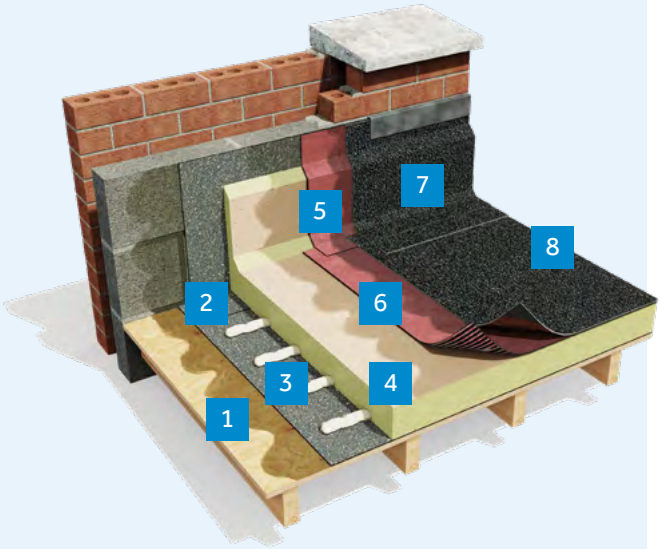
TorchSafe TA system at a glance

1. Icopal SA Primer
2. TorchSafe TA VCL Sand
3. Icopal Insulation Spray Adhesive
4. Thermazone Roofboard + Icopal SA Primer
5. TorchSafe TA Detailing Underlay + Icopal SA Primer
6. Pyrobar Underlay + Icopal SA Primer
7. TorchSafe TA Mineral Capsheet (at details)
8. TorchSafe TA Mineral Capsheet



Substrate preparation & priming

Once the substrate to receive the specified waterproofing system has been dried* and prepared, the surface will require priming using the recommended self-adhesive primer, applied at the suggested coverage rates.

The self-adhesive primer can be applied directly from a tin using a brush or roller following an initial slow stirring, or, for larger areas, it can also be spray applied.

Apply the self-adhesive primer to the prepared substrate which is to receive the TorchSafe TA VCL Sand. Where applying by brush or roller, apply the self-adhesive primer at a coverage rate between 0.12 - 0.25 litres per m^2 coverage rate depending on ambient temperature and surface porosity.

Before applying the membrane, leave the applied self-adhesive primer exposed until it no longer "strings" when being pulled away with a gloved finger. The primer must only be used between +5° C to +30° C and where the substrate is 3° C above the dew point.

***LRWA GUIDANCE NOTE No. 13** - Safe Drying and Preparation of Roof Substrates Prior to Installation of Liquid Waterproofing Systems' for guidance on methods of drying the substrate that don't involve hot works

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1. Rolls of Vapour Control Layer are set in position prior to substrate priming

2. The prepared substrate is primed using Icopal SA Primer

Primers and Adhesives

Product Description

Icopal SA Primer is supplied in a sealed metal tin. Icopal SA Spray Primer is supplied in a pressurised canister. Both are intended for use specifically with Icopal's range of self-adhesive bitumen waterproofing membranes.

The primers are used when applying self-adhesive membranes in order to optimise adhesion to a suitable substrate such as metal, concrete, plywood/OSB3*

*The suitability of the substrate must be proven

Icopal SA Primer should not be mixed with other products. Apply Icopal SA Primer or Icopal SA Spray Primer onto substrates that are clean, free from dust or grease and that are not affected by solvent.

Product Information: Icopal SA Spray Primer

Product	Measurement	Product Code
Canister	17kg	20000722
Spray Gun	470mm lance	20000723
Hose	3.6 m	20000719
Area coverage	300m²/canister	

Icopal SA
Spray Primer kit

If the substrate is not properly clean, there is a risk that the primer mainly adheres to the dust or other contaminate, and not to the substrate.

The roller or brush applied version is particularly suited to small areas or where over spray may cause issues with adjoining structures or adjacent plant and equipment.

Ensure that when used at or in the vicinity of the roof eaves or edge that the spray mist does not drift over the eaves or edge onto objects below.

Transport and Storage

Transport and store primers in original closed containers in accordance with the instructions on the packaging or as detailed on the Material Safety Data Sheet for each product.

Application Guidance

1. Prepare the surface to be bonded; ensuring it is clean, free of dust, dirt, grease and any loose materials.
2. Ensure the valve on the application gun is turned off and then turn on the valve on the canister.
3. Hold spray gun at a constant distance of between 100-225mm from the surface, open the valve on the gun and adjust allowing the primer to cobweb across the surface with minimal overlap, ensuring good coverage of the substrate.
4. Before applying the membrane leave the applied primer open until it no longer "strings" when being pulled away with a gloved finger.
5. When ready apply the membrane with a good downward pressure to exclude any air from below the membrane, complete application by rolling with a heavy or water weighted roller.

NOTE: The Icopal SA Spray Primer should only be applied when the self-adhesive membranes are ready to be installed, do not apply primer the night before in readiness for the start of work the next day as the primer will not have the desired effect.

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Spray "Cobweb" application of primer

Apply membrane with downward pressure

Finish with heavy roller

Vapour Control Layer

Install a layer of TorchSafe TA VCL Sand to the prepared and primed substrate, following removal of the release sheet.

Ensure the membrane is pressed firmly into the primed substrate using a water filled pressure roller or similar.

Head laps should be a minimum of 100mm and side laps 75mm.

All laps should be heat welded using a hot air gun and hand pressure roller.

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1. Use a hand pressure roller to encourage membrane adhesion at upstands

2. Hot air weld all laps

3. Hot air weld all laps

Icopal Insulation Spray Adhesive

Product Description

Icopal Insulation Spray Adhesive is supplied in a pressurised canister as a single component moisture curing polyurethane adhesive.

Icopal Insulation Spray Adhesive provides adhesion for a variety of insulation types such as tissue faced PIR and mineral wool.

Icopal Insulation Spray Adhesive kit

Product	Measurement	Product Code
Canister	22kg	20000717
Spray Gun	470mm lance	20000718
Hose	4m	20000719
Cleaner Adaptor	-	20000720
Cleaner	500ml	20000721
Area Coverage	300m^2/canister	

Coverage is for guidance only and is subject to application rates at 30mm bead width of adhesive at 200mm centres

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Insulation

Install Thermazone Roofboard insulation to the specified vapour control layer.

All joints should be close butted and cross joints staggered to minimise cold bridging. Insulation boards should be covered immediately by the waterproofing system.

Adhere the Thermazone Roofboard insulation to the TorchSafe TA VCL Sand using Icopal Insulation Spray Adhesive. Canisters should be thoroughly shaken prior to use.

Apply minimum 30mm beads of adhesive at the required centres as determined by the project-specific wind uplift calculation. Adhesive should always be applied across the width of the insulation board. Lay the insulation board immediately into the adhesive.

Do not allow the adhesive to skin over as this will affect the bond strength. Initial bond will be achieved after 15 minutes after which time the boards can be walked on. Full bond strength will occur within 24 hours once the adhesive has cured.

Install Thermazone Roofboard Angle Fillets at the junction of the horizontal and vertical surfaces. Ensure they are securely fixed using appropriate fixings or insulation adhesive as per the specification.

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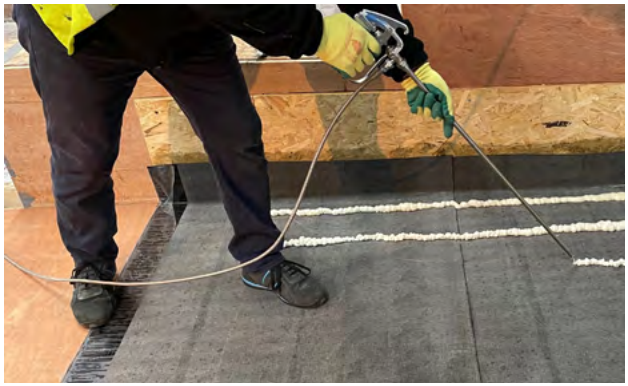

1. Apply minimum 30mm beads of Icopal Insulation Spray Adhesive

2. Lay the insulation board into the adhesive

Underlay

Apply Icopal SA Primer or Icopal SA Spray Primer to the upper surface of the installed insulation.

Before applying the membrane leave the applied primer open until it no longer "strings" when being pulled away with a gloved finger.

Install Pyrobar Underlay to the primed surface of the insulation board following removal of the release sheet. Ensure the membrane is firmly pressed into the substrate using a water filled pressure roller or equivalent.

Head laps to be a minimum of 100mm and side laps 75mm minimum.

All laps should be heat welded using a hot air gun. A continuous extrusion of bitumen should be visible at all laps.

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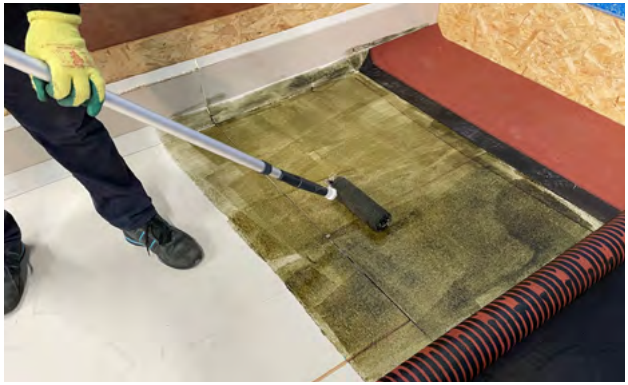


1. Apply primer to the upper surface of the installed insulation

2. Hot air weld all laps

3. Pyrobar Underlay to field area

1. Cut and pre-crease detailing underlay

Underlay at details

Prior to application of the TorchSafe TA Detailing Underlay at the detail, cut and pre-crease the membrane to the required size.

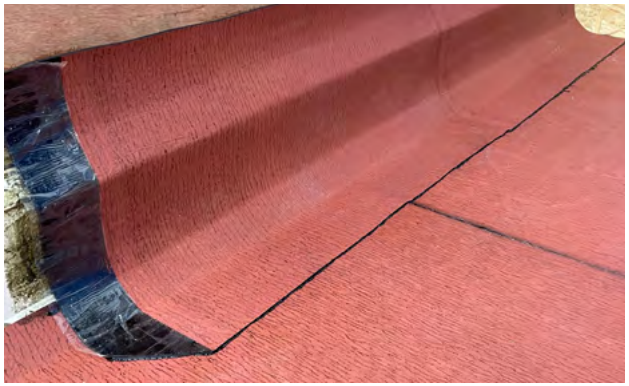
Apply Icopal SA Primer to the substrate or insulation at the required rates before installing the TorchSafe TA Detailing Underlay following removal of the release sheet.

Apply Icopal SA Primer or Icopal SA Spray Primer to the upper surface of the installed insulation at the recommended coverage rate of 0.12-0.25 litres / m^2 depending on ambient temperature and surface porosity. Before applying the membrane leave the applied primer exposed until it no longer "strings" when being pulled away with a gloved finger.

Head laps to be a minimum of 100mm and side laps 75mm minimum. All laps should be heat welded using a hot air gun. A continuous extrusion of bitumen should be visible at all laps. Ensure the membrane is firmly pressed into the substrate using a suitable brush or roller.

2. Apply primer to upstand detail

3. Hot air weld all laps



4. TorchSafe TA Detailing Underlay installed to upstand

Capsheet

Position the rolls of TorchSafe TA Mineral Capsheet above the installed Pyrobar Underlay ensuring overlaps, sidelaps and headlaps are staggered.

Apply Icopal SA Primer or Icopal SA Spray Primer to the upper surface of the installed Pyrobar Underlay at the recommended coverage rate of 0.12-0.25 litres per m^2 depending on ambient temperature and surface porosity.

Before applying the membrane leave the applied primer exposed until it no longer "strings" when being pulled away with a gloved finger.

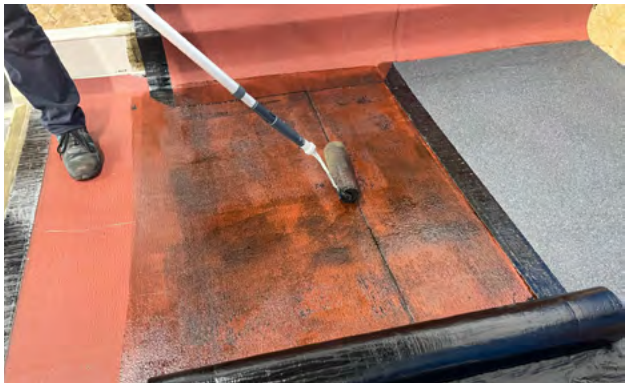
The field area cap sheet should be fully bonded to the primed underlay following removal of the release sheet.

Head laps of the capsheet should be 150mm and side laps should follow the manufactured selvedge edge, a minimum of 75mm. Headlaps should be staggered from the adjacent membrane by a minimum of 200mm (as per the section detail below).

All overlaps should be hot-air welded, ensuring a continuous extrusion of bitumen is visible.

Staggering at laps

1. Set the rolls of TorchSafe TA Mineral Capsheet



2. Apply primer to the upper surface of the Pyrobar Underlay

3. Hot air weld all laps

1. Hot air weld the field area capsheet to the detailing underlay

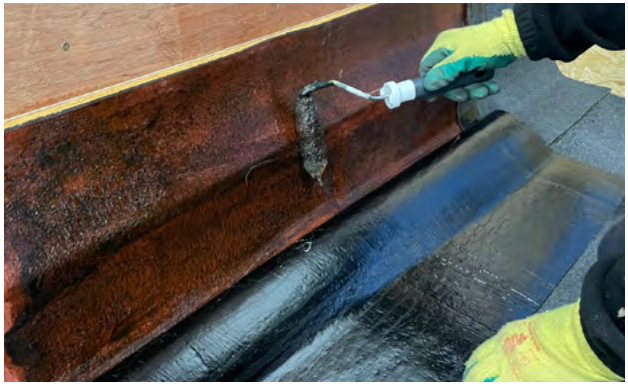
Capsheet at details

All details to be formed using TorchSafe TA Mineral Capsheet installed above TorchSafe TA Detailing Underlay. Hot air weld the head lap of the field area membrane to the TorchSafe TA Detailing Underlay.

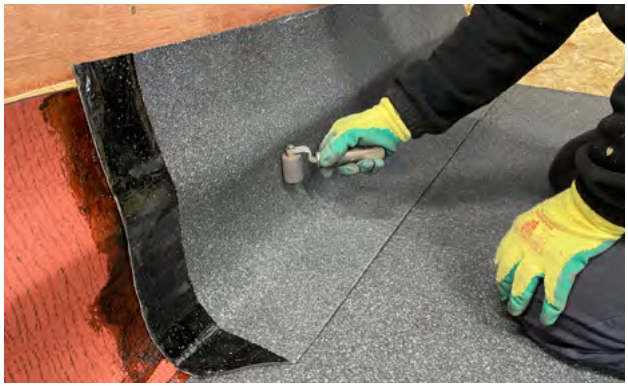
Apply Icopal SA Primer or Icopal SA Spray Primer to the upper surface of the installed TorchSafe TA Detailing Underlay at the recommended coverage rate of 0.12-0.25 litres per m^2 depending on ambient temperature and surface porosity. Before applying the membrane leave the applied primer exposed until it no longer "strings" when being pulled away with a gloved finger.

Where the detailing capsheet dresses onto the mineral finish of the field sheet, mark the edge where the overlapping detail capsheet terminates and apply Icopal SA Primer at the recommended coverage rate of 0.12 - 0.25 litres per m2 (depending on ambient temperature and surface porosity), allowing sufficient working area for the hot air gun to weld both membranes together, sealing the lap and producing a continuous extrusion of bitumen.

Lay the membrane down onto the primer and press firmly with a small pressure roller prior to welding with hot air. The capsheet and underlay should be staggered ensuring endlaps and sidelaps are offset with the layer below by a minimum of 200mm.



2. Apply primer to the detail



3. Dress the prepared capsheet to the primed detail

4. Hot air weld all laps

Rainwater outlet

Install a suitably sized Roofgard Outlet ensuring a watertight seal is achieved between the outlet and downpipe by use of the rubber 'O' rings to prevent water backing up and entering the building.

The outlet has a Universal POCB membrane flange that should be fully supported and welded to the underlying membrane by flame-free hot-air welding. All laps must have a continuous visible extrusion of bitumen.

Position the TorchSafe TA Mineral Capsheet and cut a hole matching the diameter of the underlying outlet.

Apply Icopal SA Primer or Icopal SA Spray Primer to the upper surface of the installed TorchSafe TA Detailing Underlay at the recommended coverage rate of 0.12-0.25 litres per m^2 depending on ambient temperature and surface porosity. Before applying the membrane leave the applied primer open until it no longer "strings" when being pulled away with a gloved finger.

Unroll the TorchSafe TA Mineral Capsheet applying roller pressure to encourage adhesion. Fully seal the capsheet to the circumference of the outlet aperture using flame-free hot-air welding

Complete the installation of the rainwater outlet with the inclusion of a Roofgard Leaf Grate.

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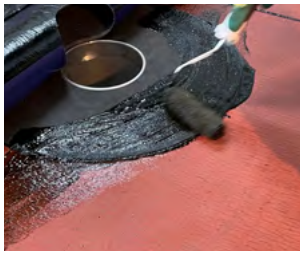
1. Weld the membrane flange to the Pyrobar Underlay



2. Apply primer to the upper surface of the membrane flange and underlay

3. Lay the TorchSafe TA Mineral Capsheet above the primed membranes

4. Weld the capsheet to the circumference of the outlet aperture and install the leaf grate

Icopal Insulation Spray Adhesive - Application Guidance

Product specific tool-kit & protective gear

- Ensure the substrate is clean, solid and free from dirt, grease and other contaminates and free from any standing water.
- Do not apply if rain is imminent
- Remove all surface water and allow at least 1 hour drying before applying the adhesive.

Canister Set-up Procedure

1. First of all, agitate the canister for a minimum of thirty seconds to ensure a stable mix of the adhesive.

2. Attach one end of the hose to the spray wand and tighten with a spanner.

3. Remove the black cap on the canister valve and attach the hose to the valve and tighten with a spanner.

4. Before opening the canister valve ensure the trigger on the spray wand is closed by turning the black valve clockwise until fully closed.

5. Before applying the adhesive charge the hose and gun with adhesive by spraying into a container until an even and continuous spray is achieved.

6. Apply the adhesive in beads (i.e. width of bead and centers of beads) as specified in the BMI specification and wind uplift calculations for both the field area and the roof perimeter areas.

7. Place insulation boards directly into the wet adhesive, applying pressure to ensure full contact into the adhesive

8. When work is complete and the canister still contains adhesive, turn off the valve on the spray gun, (clockwise) only, and clean the end of the spray wand with Icopal Hose and Gun Cleaner ensuring the aperture is clean.

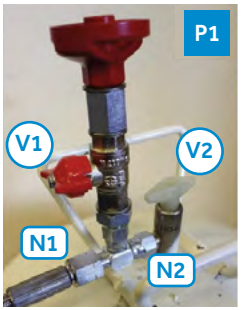
9. Once the canister is empty turn off the canister valve and the hose to the canister valve can be removed and attached to a fresh canister as detailed above.

NOTE: Do not close the canister valve until the canister is empty, to do so may cause adhesive to block the hose.

NOTE: If adhesive appears brittle - DO NOT USE! The canister will require further vigorous agitation.

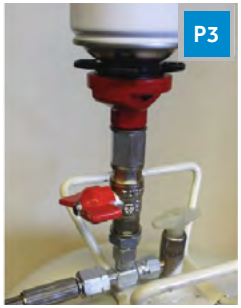
Equipment
Cleaning Guide

P1.
Ensure both canister valve (V2) and the cleaning adapter valve (V1) are completely closed before proceeding, as shown in picture P1. Now attach the cleaning adapter directly to the canister by tightening the nut (N2) to the canister until secure, hold the cleaning adapter as you tighten the nut to keep it upright as pictured in P1. Once attached, connect the appropriate hose and tighten the nut (N1) to the adapters' thread until tight and secure.



P2.
Once ready to proceed with cleaning the hose and gun, again ensure the canister valve (V2) and the cleaning adapter valve (V1) are closed. Attach the appropriate cleaning aerosol to the cleaning adapter, screwing clockwise until secure (picture P2). Be careful not to over tighten.

P3.
Once ready leave the canister valve (V2) closed and open the adapter valve (V1) into the vertical position and allow the cleaner to fill the hose. Ensure you have an appropriate waste container available. Aim the spray gun into the waste container and apply pressure to the gun's trigger. Dispense enough cleaner through the line to ensure both the hose and spray gun are thoroughly clean and no adhesive remains.



Icopal Insulation
Spray Adhesive - Application Guidance

Canister Disposal

1. Spray adhesive canisters are pressurised. Before they can be disposed of safely all pressure must be completely released from the canister.

2. When the canister has come to the end of its life and all the adhesive has been used, ensure any residual adhesive has been removed.

3. Wearing appropriate Personal Protective Equipment (refer to Material Safety Data Sheet) turn the canister on its' side with the nozzle pointing away from you, open the canister valve (V2 as pictured in P1 above) dispensing any remnants into a waste container for later disposal.

4. Once completely the circular disk, which can be found on the top of the canister below the valve (V2), can now be punctured using a non-ferrous bar.

NOTE: Any residual adhesive remaining within the canister should be allowed to cure.

5. The canister can now be disposed or recycled safely in accordance with site and local waste regulations. It can then be disposed of as nonhazardous scrap waste in accordance with European waste directive code EWC 150104 (empty aerosol, no hazardous residues).

6. In the event that a canister needs to be disposed of that is partially pressurised and contain adhesive or primer, it should be disposed of using the following European waste directive code EWC 160504 (full or partially empty aerosol).

If you are in any doubt about your canisters disposal, please contact Icopal Technical Services directly for advice.

Information is accurate at the time of printing. Product information, technical standards and codes of practice are under constant review. We reserve the right to change and amend product information without prior notice. For the latest information, suitability and specification advice, please refer to our website or contact Icopal's Technical Services Team.

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DATE OF ISSUE: JULY 2025
VERSION 1

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ICO_INSTAL_25_100000070_V1