STOPAQ®
Self Healing Corrosion Prevention & Sealant Technology

ANTICORROSION TECHNOLOGY
Sustainable materials engineering and anti corrosion solutions

Easy-Qote®

EASYQOTE® SC PATCHES APPLICATION GUIDELINE

FOR INTERNAL USE				
REV	**ISSUED**	**REASON**	**PREPARED BY**	**REVIEWED**
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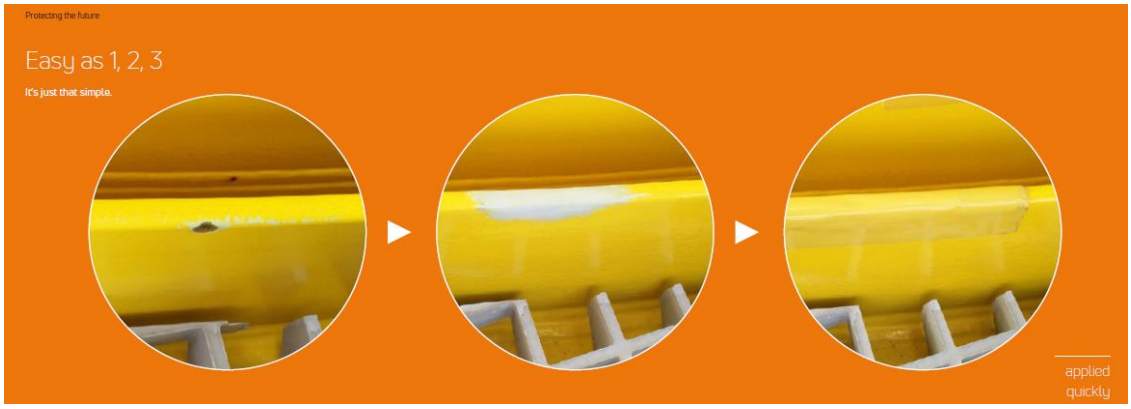
APPLICATION PROCEDURE SUMMARY

The following application procedure has been prepared to provide guidance in the application of EasyQote® SC Patches as a localised coating remediation and is generic in nature. At the current issuance of his procedure, the applicability of the EasyQote®SC Patches will be limited to 50degC operating limit. Anything above this temperature range up to 95degC will require the use of EZ/EZHT Wrappingband methodology of patching or wrapping as per approval from clients.

Any onsite variations and specific application procedure will need to be created to suit the respective client working environment and conditions, which may differ from this guideline, following good practice from STOPAQ guidelines or site-specific requirements.

This latest evolution of technology from STOPAQ comes from a history of innovation and track record of success. STOPAQ was the permanent corrosion solution first brought to market in 1983 as a sealing solution, followed by the Wrappingband technology in 1997. The brand continues to innovate with the first deployment EasyQote® SC Patches in 2016 offshore in the North Sea on damaged wind turbine foundations.

EasyQote®SC Patch system is a revolutionary product offered by Seal For Life® to manage localised coating deterioration on an asset without having to paint. The EasyQote®SC Patches (150mm x 300mm patch size in a siliconized cardboard) is a polymeric coating designed with the concept that a corrosion solution could be applied simply as a sticker rather than painting or spraying. It is 100% plant based and therefore safe for both user and the environment as well as being simple to apply.



The unlimited shelf life of these products mean they can be used as and when any coating damage takes place either onshore or offshore. They are readily available in the standard colours (Grey RAL 7035 and Yellow RAL1023). EasyQote® SC Patch system can offer a cost-effective solution to corrosion that is designed to outlive the life of the asset itself.

All EasyQote®SC Patch applications must be completed by Anti Corrosion Technology (ACT) STOPAQ certified applicators and in accordance with the STOPAQ Application Manual 2021 (Link: 2021 Application Manual) as well as all relevant Product and Safety Data Sheets.

Please contact Anti Corrosion Technology Technical Team if you require any clarification on the below procedure.

1.0 CORROSION PROTECTION

- If not otherwise agreed upon, this application guideline conditions shall be met in connection with corrosion protection of steel structures / wind tower / offshore platform / onshore facility or piping covering a broad range of materials from normal carbon steel or low alloy steel, stainless steel, aluminium, or Ni based alloy either indoor or outdoor at atmospheric conditions in a marine environment or onshore. Cross references to specific site-based Coating Standard will govern the use of this guideline in line with client's specific approved Coating Standard.
- These specifications apply whether the coating application is carried out on site under exposed atmospheric conditions or in temporary housings or in internal structures such as wind towers (Transition Piece, Tower, or Platforms).
- Surfaces shall be coated to protect the steel structures from corrosion, and all other kinds of degradation, during the construction, transportation, installation, and operation stages of the project.
- Execution of the corrosion protection work shall be carried out in best conditions as possible under the respective onshore/offshore conditions with a high focus on the quality of repair works on the environmental risks by handling chemical products like thinner and paints.
- The corrosion protection shall comply with the relevant standards mentioned, newest version is valid unless otherwise is clearly stated.

2.0 EASYQOTE® SC PATCH APPLICATION

2.1 Scope of Application

This guideline describes the requirements and procedures for surface preparation and application of EasyQote® SC Patch materials for repair and maintenance of coating systems on steel or other metallic structures for onshore and offshore conditions.
It also outlines the quality inspection requirements to be adopted during surface preparation and coating application of the various EasyQote® SC Patch materials.

2.2 Scope of Work / Materials

The EasyQote® SC Patch repair coating systems is the preferred coating system to repair coating damage due to weathering, ageing or mechanically induced damages to the original coating systems. As the EasyQote® SC Patch comes in a siliconised cardboard @ 150mm x 300mm patch size, this system makes it ideal for rope access deployment during a "Find and Fix" campaign execution.

It can be applied under an extensive range of atmospheric working conditions.

The following generic STOPAQ® Products and EasyQote® SC Patch materials are available exclusively from ACT:

- STOPAQ® CZH Paste
- STOPAQ® 4200 Filler used to inject between flanges and bolts/nuts protection
- STOPAQ® EZ / EZHT Wrappingband
- EasyQote® SC Patch
- EZ Shield Topcoat (Compatible water based coating system used with STOPAQ®EZ/EZHT Wrappingband product ranges)

Depending on the type and shape of the structure/piping geometry to be remediated, the proposed repair system can consists of:

- EasyQote® SC Patch only
- Combination of STOPAQ®CZH Paste with STOPAQ® EZ / EZHT Wrappingband
- Combination of STOPAQ®CZH Paste with STOPAQ® CZH / CZHT Wrappingband and EasyQote® SC Patch as this avoid any coating application
- Combination of STOPAQ®CZH Paste with STOPAQ® EZ / EZHT Wrappingband with EZ Shield Topcoat
- Combination of STOPAQ®CZH 4200 Filler with STOPAQ® EZ / EZHT Wrappingband with EZ Shield Topcoat for flange encapsulation and protection
- Combination of STOPAQ®CZH 4200 Filler with STOPAQ® CZH / CZHT Wrappingband and EasyQote® SC Patch for flange encapsulation and protection

When voids, sharp edges, rounding internal corners or other irregular shaped surfaces are present, it is recommended to apply STOPAQ® CZH Paste to create a smooth transition prior to application of EasyQote® SC Patch or STOPAQ® EZ / EZHT Wrappingband.

STOPAQ® 4200 Filler is used to fill gaps between flanges and should be applied around the bolt and nuts to provide the long term protection within these components. Please seek advise from Anti Corrosion Technology Technical team for bespoke application guidelines in using these products for your corrosion prevention needs.

2.3 Equipment List

The following tools, equipment and auxiliaries are required:

- Personal Protection Equipment
- Temperature probe, Dew point tester
- Scissors, knife, measuring tape
- Abrasive cleaning pads, wire brushes (power tools)
- 100% Alc Industrial Grade IPA with cleaning rags
- Paint brush for Topcoat application, WFT shim

2.4 Environmental conditions

The environmental conditions and the steel substrate temperature shall be measured with a calibrated thermo- hygrometer according to ISO 8502-4.

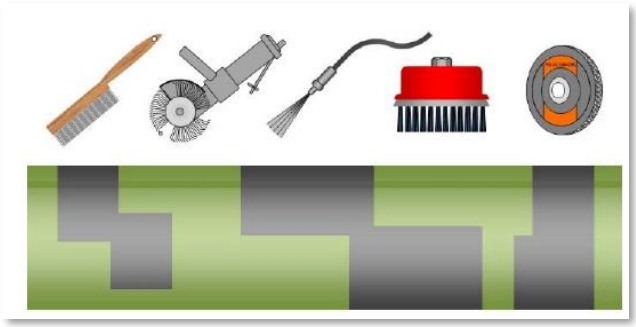
Prior and during application, the temperature of the substrate shall be at least 3 °C above the dewpoint to prevent water condensation on the substrate.

Ambient and substrate temperature shall be a minimum of 5°C, preferably between 10 and 30°C for fast and easy application. Preheating of the substrate may be required. Relative humidity shall be below 85 % for the application of STOPAQ® and EasyQote®SC Patches.

2.5 Surface Preparation

2.5.1. Clean and degrease surface with Isopropanol/IPA to ISO8501-4 St2/St3. Do not use any other solvents like thinner

2.5.2. An abrasive cleaning pad can be used. Use clean rags to wipe IPA on and off. Remove all grease, oil and any loose material. Feather out any sharp paint edges. STOPAQ CZH paste can be used later after cleaning, to fill in any damaged or pitted areas if required prior to application of EasyQote®SC Patch.

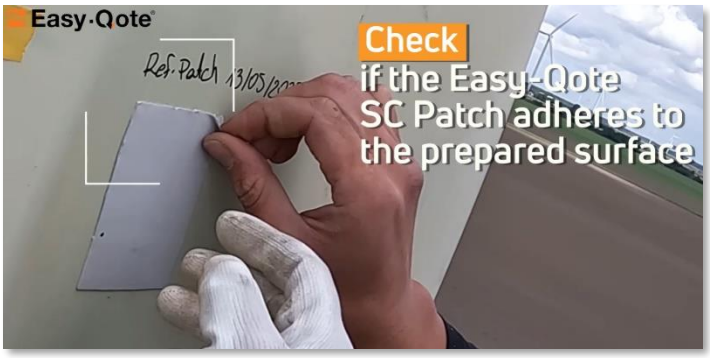


2.5.3. Perform Surface Cleanliness/Reference Patch Test to confirm the surface has been cleaned to a minimum St2/St3 standard, and ready for EasyQote®SC Patch Application.

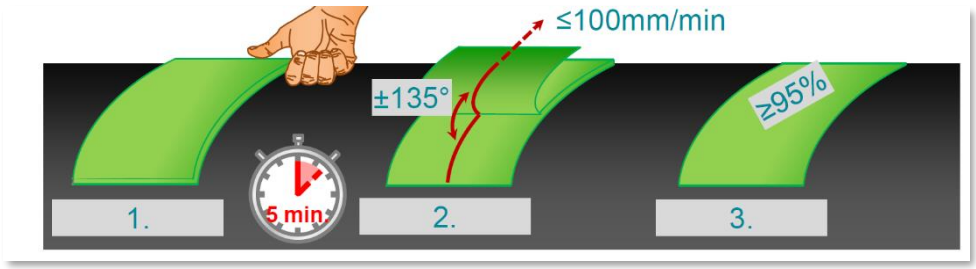
Follow this sequence:

1. Apply a ±75mm x 100mm EasyQote®SC Reference Patch adjacent the surface of the pipeline/structure where coating defect exists and press the material into the pores of the substrates.

2. Remove the EasyQote®SC Reference Patch test piece after approx. 5 minutes at an angle of approx. 135° with a pull off speed of 100mm/min.



3. Cohesive failure should occur and the remaining EasyQote®SC Reference Patch material should cover ≥95% of the surfaces. If this is less, further cleaning is required. Repeat cleaning and cleanliness check until ≥95% of the surface remains covered with residual EasyQote®SC Reference Patch product.



Below are examples of peel test failures (adhesive failure) as seen from prior STOPAQ Application which is applicable to the EasyQote®SC Reference Patch application process:

- If EasyQote®SC Reference Patch fails, continue cleaning and redo EasyQote®SC Reference Patch until a 95% cohesive failure is achieved.




At least one EasyQote®SC Reference Patch Test must be made prior to EasyQote®SC Patch application on site. Site QC or STOPAQ Trained Inspector can determine any other reference patch amount above the minimum requirement of one reference patch recommendation from ACT.

2.6 STOPAQ® CZH Paste

When voids, sharp edges, rounding internal corners or other irregular shaped surfaces are present, it is recommended to apply STOPAQ®CZH Paste to create a smooth transition prior to application of STOPAQ®EZ / EZHT Wrappingband or the EasyQote®SC Patch.

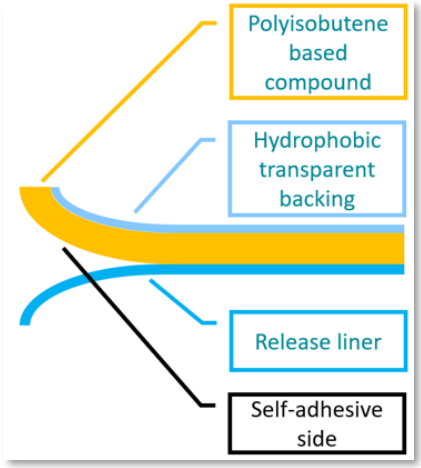
Take the required amount of product from the slab and mould the material by hand in or a roller to the desired shape. For all moulding operations, press the STOPAQ®CZH Paste during application avoiding air entrapment.

After application of the paste, the surface must be smooth to enable a proper installation of the additional materials, EasyQote®SC Patch or STOPAQ®EZ / EZHT Wrappingband. For filling voids and small imperfections, the use of a putty knife can be used to scrape off the excess material.

2.7 EasyQote®SC Patch or STOPAQ® EZ / EZHT Wrappingband

Measure the area to be coated. If required, pre-cut strips of the EasyQote®SC Patch material with scissors or knife to the appropriate size. Oversized dimensions may be needed in case the product is applied with overlaps.

Apply the pre-cut material onto the clean substrate. Please ensure surface preparation requirements are followed as per section 2.5 Surface Preparation. This can be done by rolling-out the material for large open areas and post-roll the applied material with a roller.



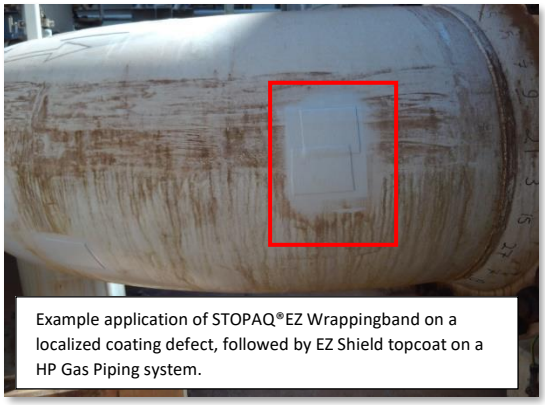
Remove the release liner (in this instance the product will be removed from the siliconised cardboard) just prior to application to the surface to avoid contamination of the adhesive surface and premature adhesion to the substrate.

For small areas of coating defect, pre-cut the material and apply it by hand and press the material firmly to the substrate by hand or with the help of a roller. Avoid air inclusions.

When the substrate is perfectly flat, the pre-cut material can be applied seamless against each other. In all other cases a minimum overlap of 10 mm is required. The overlaps will then be visible in the finished system.

The EasyQote® SC Patch or STOPAQ® EZ / EZHT Wrappingband must be visually inspected for any defects. The appearance must be smooth and should be shaped tight around all details.

If required, Pinhole/Holiday detection can be conducted in accordance with NACE SP0188 (for metallic substrates only)



Example application of STOPAQ®EZ Wrappingband on a localized coating defect, followed by EZ Shield topcoat on a HP Gas Piping system.

2.8 Inspection and Testing Plan

During surface preparation and application of the coating system the required inspection steps shall be described in a specific Inspection Test Plan (ITP). Example of steps and hold points are referenced below.

Step	Activity	Method / Procedure	Acceptance Criteria	Consequence if not accepted
1	• Check climatic condition before start of work. • Air temperature • Surface temperature • Relative humidity	• Elcometer 319 • ISO 8502-4	• Shall be above 5° C. • Application temperature between 10 and 30°C and at least 3 °C above dewpoint • For application of WB Topcoat, the relative humidity shall be above 80 %	• If measured values are outside the limits **= NO Application allowed** • Possibility to use heater or dehumidifier.
2	• Assessment of surface condition	Visual inspections and photograph evidence	• Damaged areas identified in accordance with the last List of Findings. • Additional damages to be added. • New pictures of all damaged areas.	Lack of recordable evidence to progress with final signoff from client's internal documentation requirements.
3a	Cleaning of affected area (coating damage and 10 cm around)	• Cleaning tools (scrapers, wire brush) • Isopropanol Alcohol	Surface shall be free from dust and other visual contaminations.	Repeat cleaning step
3b	Preparation of bare steel or metal area	Wire brushes and/or power tool cleaning ISO 8501-1 and ISO 8504-3	St2 / St3 minimum (anything above this requirement will be site specific and shall override the minimum cleaning)	Repeat cleaning step
4	Degreasing of affected area (coating damage and 10 cm around)	Isopropanol Alcohol	Surface shall be free from grease contamination.	A grease-free surface areas is required the adhesion between substrate and EasyQote®SC. Take a picture of prepared area for documentation.
5	Check cleanliness	Apply 75mm x 100mm of EasyQote®SC Patch as a reference patch onto the surface and peel from surface. See section 2.5 Surface Preparation	Cohesive failure should occur, and the remaining reference patch material should cover ≥95% of the surface.	Redo cleaning and carry out Reference Patch again until a pass is achieved.
6	STOPAQ®CZH Paste application	Visual inspection for any defects	All gaps, sharp edges, irregular shapes shall be covered, and the surface should be smooth.	• Re-apply the Paste material. • Take a picture of prepared area for documentation.
7	STOPAQ®EZ/EZHT Wrappingband or EasyQote®SC Patch application on the total surface area	Visual inspection for any defects	The full area shall be fully covered with sufficient overlap and no defects visible	Cover all areas with STOPAQ® EZ / EZHT Wrappingband material for sufficient overlap.
8	Application of 2- layers EZ Shield Topcoat (Only applicable for STOPAQ®EZ/EZHT Wrappingband)	• WFT measurement by comb gauge • ISO 2808 - Method 1A	• The WFT shall be 75 µm per layer. • Ideal temperature for application is between: +20degC and +32degC.	• Adjust to the required WFT is obtained
9	Final visual inspection	• Visually look for any disbonding, malfunctions etc.	Coating repair finalised	Record the repair. Take a picture of prepared area for documentation

2.9 List of consumables / required tools EasyQote®SC Patch, STOPAQ® EZ / EZHT Wrappingband and EZ Shield Topcoat application

Quantity	Description	Quantity	Description
1	Dew point meter	1	Dew point meter
1	Pair PU Gloves	1	Pair PU Gloves
1	Safety knife	1	Safety knife
1	Scissor	1	Scissor
1	Cleaning Pad	1	Cleaning Pad
1	Pressure roller	1	Pressure roller
1	Pouch SFL Cleaning Wipes or IPA	1	Pouch SFL Cleaning Wipes or IPA
1	STOPAQ®CZH Paste	1	STOPAQ®CZH Paste
1	STOPAQ®EZ/EZHT Wrappingband	1	EasyQote®SC Patch
1	EZ Shield Topcoat		
1	Paint brush		
1	Stir stick for paint		

2.10 Repairs EasyQote®SC Patch or STOPAQ® EZ / EZHT Wrappingband

If the applied EasyQote® SC Patch material is mechanically damaged it shall be repaired with the same type of EasyQote® SC Patch material. Sound existing coating edges shall be feathered by hand or via power sanding for minimum 50 mm towards the substrate prior to over coating and between each coat. Masking shall be soft taped so that sharp edges and step ups are not visually or physically evident.

It is allowed to overlap the existing EasyQote® SC Patch material with new applied EasyQote® SC Patch material.

2.11 Safety

It is recommended to have a pre-job (toolbox) meeting before commencing the work activities to discuss the safety items related to the work to be executed.

During surface preparation and coating application, the applicators shall wear all required PPE.
In view of the potential hazards for this type of work in offshore circumstances, additional safety precautions are valid for this purpose and shall be discussed before the work activities may start.

2.12 Qualification and certification training of applicators

All STOPAQ® and EasyQote® SC Patch application within Australia, New Zealand, Papua New Guinea and New Caledonia must be done by trained and certified applicators by Anti Corrosion Technology. Australia.

Please consult Anti Corrosion Technology team for verification and validation of certification of applicators.

3.0 DOCUMENTATION AND RECORD KEEPING

- Each repair spot has to be tracked by a specific defect ID number to be determined as per specific client internal documentation recording or anomaly management processes.
- It is highly advisable that a "Before and after" reference photograph of repair work includes record of EasyQote®SC Reference Patch be taken and kept within the clients specific document managemet system.
- If multiple number of repair items are within close proximity to each other defects, and will be repaired at the same time, these can be connected and referenced as one defect ID for ease of documenting.
- During the execution of the work, contractor must keep a working daily log/inspection report (including photo's) with minimum reporting of all steps in accordance with the ITP.
- Use of STOPAQ Daily Application Report as reference is highly recommended to allow full traceability of work execution records.

4.0 STANDARD REFERENCES

Reference documents	Description
EN ISO 8501-1	Preparation of steel substrates before application of paints and related products - Visual assessment of surface cleanliness - Part 1: Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings
EN ISO 8501-3	Preparation of steel substrates before application of paints and related products - Visual assessment of surface cleanliness - Part 3: Preparation grades of welds, edges and other areas with surface imperfections
EN ISO 8502-3	Preparation of steel substrates before application of paints and related products - Tests for the assessment of surface cleanliness - Part 3: Assessment of dust on steel surfaces prepared for painting (pressure sensitive tape method)
EN ISO 8502-6	Preparation of steel substrates before application of paints and related products - Tests for the assessment of surface cleanliness - Part 6:Extraction of soluble contaminants for analysis - (Bresle method)
EN ISO 8502-9	Preparation of steel substrates before application of paints and related products - Tests for the assessment of surface cleanliness - Part 9: Field method for the conductometric determination of water-soluble salts
EN ISO 8503-5	Preparation of steel substrates before application of paints and related products Surface roughness characteristics of blast-cleaned steel substrates - Part 5: Replica tape method for the determination of the surface profile
EN ISO 8504-3	Preparation of steel substrates before application of paints and related products - Surface preparation methods - Part 3: Hand- and power-tool cleaning
EN ISO 4628	Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 1: General introduction and designation system
EN 14879-1	Organic coating systems and linings for protection of industrial apparatus and plants against corrosion caused by aggressive media – Part 1: Terminology, design, and preparation of substrate
SEAL FOR LIFE – STOPAQ and EasyQote PDS	Technical Data Sheet for EasyQote® SC Patch, STOPAQ ®CZH Paste, STOPAQ® EZ / EZHT Wrappingband and EZ Shield Topcoat
SEAL FOR LIFE – STOPAQ and EasyQote PDS	Safety Data Sheets for EasyQote® SC Patch, STOPAQ ®CZH Paste, STOPAQ ®EZ / EZHT Wrappingband and EZ Shield Topcoat