
WARRANTY CERTIFICATE

Customer:	
Product (s):	• larson [®] 4 mm
Order:	
Sqm delivered:	
Project:	
Site:	According to "Warranty application form" (Annex I)
Shipment date:	
Warranty:	XX years
Notes:	

This document is informative. The final guarantee will be delivered when the customer completes and sends the Warranty Application Form, at the request of **Alucoil**[®].

Alucoil[®] warrants for a maximum period of XX years, as the manufacturing company, to first hand buyer this registered and branded **larson**[®] product for façade, is defect free and will keep its original qualities of the product. The warranty consists:

- No Delamination or cracking of **larson**[®] ACM unless due to unsuitable machining (see Annex II and Anex III).
- No peel, check or crack of original paint surface directly exposed to the elements, except for such slight crazing or cracking as may occur on normal roll-formed edges or break bends at the time of forming pre-painted coils or panels which are accepted as standard (no more than 5% of the total surface over the technical warranty period) - (see Annex II and Anex III).

Alucoil[®] will supply whatever **larson**[®] material is necessary to repair or to replace any defective material during the warranty period.

This limited warranty is subject to the following conditions:

1. This warranty is authorized by a competent member of **Alucoil**[®] Quality Department.
2. The product must be employed appropriately, in normal atmospheric conditions, not including corrosive or aggressive agents such as those found in chemical plants, nor plants producing ash and smoke or aggressive substances or corrosive environments, salty water, intermittent or permanent immersion in water or in other liquids or substances.

3. Warranty defined as the customer specified in the "Warranty application form" (see Annex I). The mismatch defined in the "Warranty application form" will cancel this warranty.
4. The product has to be installed on the project within 12 calendar months after shipment from **Alucoil**[®] production facilities for the Warranty to apply.
5. The façade must have been maintained appropriately, according to **Alucoil**[®] maintenance recommendations (see Annex III).
6. Façade must be inspected and properly maintained twice per year in accordance with **Alucoil**[®] "Inspection, maintenance and repair guidelines" in order for your Warranty to apply. Fully documented and corroborative cleaning records must be kept during the Warranty period and provided to **Alucoil**[®] when exercising your Warranty rights.
7. **Alucoil**[®] has to be notified in writing by the customer (Original Equipment Manufacturer) of a claim within 30 days of the initial identification of any defect indicating a potential failure of the product meeting the specified performance criteria and, for any single area, before 2.5% or 200m², whichever is the less, is adversely affected. Notification must include proof of the origin of the product including tracking information on the manufacturing and installation of the product. Time is of the essence, and the failure to make a Limited Warranty claim within this period will eliminate your right to make that claim.
8. **Alucoil**[®] shall be given opportunity(ies) to inspect the **Alucoil**[®] products that the customer is claiming to be defective. Opportunities to inspect means pictures taken by customer, visit the Project site...
9. It is the customer's responsibility to inspect the goods at the time of delivery. Any complaints concerning damage or defects, or other deviations from the acknowledgment of the order must be reported no later than 3 days from receipt of the goods.
10. The client must keep the necessary documentation to identify the material used and its installation date.
11. If, after inspection of the product, **Alucoil**[®] determines the claim is valid, **Alucoil**[®] shall refinish, repair, replace by the same or equivalent panels or refund a percentage of the invoice value of the defective product to a maximum of the full purchase value, at **Alucoil**[®] sole option and as further described below. All corrective Limited Warranty work will be performed by **Alucoil**[®] or a contractor authorized by **Alucoil**[®]. Any colour variance between the replacement or repainted product and the originally installed product due to normal weathering shall not be considered a defect.
Should **Alucoil**[®], in order to fulfill its obligations hereunder, replace the products or parts thereof, then the replaced products or parts shall become its property.
In the event of the non-, improper- or late fulfillment by the customer of any obligation arising from the agreement concluded with **Alucoil**[®] or an agreement related thereto, **Alucoil**[®] shall not be obligated to honour the Limited Warranty or otherwise pay compensation of any kind in connection with the agreements.
The Limited Warranty is XX years with a limited refund period starting after XX years. During the first XX years, period after the shipment date, the Warranty value will be equivalent to a maximum of 100% of the purchase price of the **Alucoil**[®] product. From year XX until year XX the Warranty value will be the following percentage of the total purchase value:

Year XX YY%

Year XX YY%
 Year XX YY%
 Year XX YY%
 Year XX YY%

Notwithstanding the refund schedule above, **Alucoil**[®] shall determine in its sole discretion what corrective action or remedy will be available under the Warranty.

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Alucoil[®] reserves the right to stop or modify its products. If the original product is no longer available, **Alucoil**[®] may, at its option, either substitute a product of equal value and quality or refund the purchase price of the defective product.

The customer must maintain the confidentiality of any commitments made or corrective actions taken by **Alucoil**[®] as such related to the Warranty.

12. This warranty is valid only after receipt of this document **Alucoil**[®] (Polígono Industrial de Bayas, c/ Ircio, Parcelas. R72-R77, 09200 Miranda de Ebro - Burgos - España/Spain), properly signed and stamped by the customer. The customer must have some proof of that receipt by **Alucoil**[®].
13. The Warranty period shall commence on the date of **Alucoil**[®] initial shipment of the product. The date on the delivery note of initial supply of the product from **Alucoil**[®] to its customer is the recognized start date of the Limited Warranty period.
14. This Warranty is exclusively for the customer that has purchased the product directly from **Alucoil**[®]. Accordingly, this Warranty is nontransferable and automatically terminates upon the transfer of the products to any individual or entity. "Transfer" means:
 - (i) Transfer of the products along with property on which the Products are installed.
 - (ii) Transfer of the products detached from any property.
15. **larson pe**[®] panels should only be installed in buildings where it is permitted according to the local building regulations or building technical approvals valid in the place of installation and specially complying fire safety rules and other relevant norms regarding reaction to fire.
16. It is the responsibility of the customer to prove that they are complying with the end use of the product and with the Building Regulations or building technical approvals applicable in the place of installation.
17. This Limited Warranty is governed by Spanish Law.

Exclusions

1. Damage or deterioration caused by fire, lightning, flood, explosion, abnormal winds, earthquake, acts of war, terrorism, misuse, negligence, riots, civil commotion / radiation, falling objects, vandalism, exposure to corrosive atmospheres, natural disasters not otherwise named, acts of God, and other extraneous causes or aggressive atmospheres.
2. Damage to the product due to handling by erectors/installers, storage (out of **Alucoil**[®] premises), or transportation (out of **Alucoil**[®] responsibility).
3. Damage to the product that is subject to any kind of insurance.
4. Damage due to fabrication and / or installation of the coated material.
5. Damage due to non-uniform fading and colour changes if they resulted from coated surfaces being unequally exposed to sunlight and weather sources.

6. Products that have been installed or are used and/or consumed at a location situated within a radius of 1500 meters of installations that discharge chemical substances and/or other corrosive substances. This provision shall also apply should a situation as referred to in this subclause arise due to a change in circumstances.
7. Surfaces that have been re- or post painted; touched up and/or repaired.
8. Surface areas that have a less than 5° degree pitch and areas subject to ponding of water or that otherwise are subject to retention of water or other contaminants, including direct or indirect contact to corrosive materials.
9. Surface areas that accumulate dirt or debris and that are not exposed to washing by rainfall, unless for every section, maintenance records show that these areas have been adequately washed in accordance with **Alucoil**[®] maintenance guidelines at least twice per year.
10. Damage from misuse, unauthorized modification, or neglect, including impact of foreign objects.
11. Damage from contact or direct exposure to chemicals, copper, steel, or other corrosive or degrading substances.
12. Damage from defects in, failure of, or harm to any structure to which the products are attached.
13. Property damage allegedly caused or affected by the products.
14. Personal injury arising from contact with or exposure to the products.
15. Products that have been used for any purpose other than as specified in their instructions.
16. Products that have been removed or reinstalled after their initial installation.
17. Any products not manufactured by **Alucoil**[®].
18. Any cost other than refinishing, repair, replacement or refund of products with defective coating materials or workmanship as specified in this Limited Warranty.

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All communications regarding this Warranty should be sent by registered post to the following address:

Alucoil®
Departamento de Calidad - División Composite.
Polígono Industrial de Bayas, c/ Ircio, Parcelas. R72-R77.
09200 Miranda de Ebro - Burgos (España/Spain).

THIS WARRANTY IS EXCLUSIVE. **Alucoil®** IS NOT RESPONSIBLE FOR LOSSES OR DAMAGES (INCLUDING ECONOMIC OR PROFIT LOSSES) SUFFERED OR CAUSED BY THE CLIENT AS A RESULT OF ANY VIOLATION OF THIS WARRANTY.

Miranda de Ebro, , 20

Warranty Validation

Representing **Alucoil®**:

Representing Customer:

(Sign and stamp)

Name:

Position:

Date:

(Sign and stamp)

Name:

Position:

Date:

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ANNEX I: WARRANTY APPLICATION FORM

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ANNEX II: **Bend Radii**

Processing within 2 months after delivery

T-bend	Ri rec.	Ro rec.
≥ 1.5	≥ 0.7	≥ 1.2

Processing later than 2 months after delivery

T-bend	Ri rec.	Ro rec.
≥ 2.5	≥ 1.1	≥ 1.6

T-bend: Minimum recommended T-bend

Ri rec.: Minimum inside bend radii (mm)

Ro rec.: Minimum outside bend radii (mm)

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ANNEX III: **Larson**[®] technical recommendations for façade

1. MACHINING OF COMPOSITE PANEL

The advanced manufacturing process of **larson**[®] composite panels brings out an extremely tight adhesion between the different layers and coats. Every test carried out on our products have at least doubled the recommended parameters according to several standards.

Thanks to the perfect bond between the different layers of **larson**[®] composite panels, they have an immense capacity to allow multiple types of machining and manipulation. All works detailed below shall be carried out at temperatures over 10°C:

1.1. Cutting

Cutting can be performed in:

- Vertical saws (straight cuts).
- CNC machines (straight and curved cuts).
- Guillotine (straight cuts) (larson metals[®] stainless steel).

1.2. Routing

Routing can be performed in:

- Portable routing machines.
- Vertical manual routing with feeler.
- CNC machines.

<p>ROUTING DISC (VERTICAL)</p> <p>Disc D.244x14mm Material: High Speed Steel (HSS)</p> <p><u>Standard</u> V_c: 5000rpm / f_c: 16m/min</p>	<p>CUTTING DISC (VERTICAL SAW)</p> <p>Disc D.300x3.2mm Material: Steel</p> <p><u>Standard</u> V_c: 5000rpm / f_c: 16m/min</p>
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	Routing CNC	Shape cutting CNC	Straight cutting CNC
larson pe larson specials (PE) larson wood (PE) larson metals Copper (PE) larson metals Brass (PE) larson metals Anodized (PE)	CERIN TOOL "V" $\alpha = 45^\circ$ - D.12mm - Hard Metal <u>Max</u> V: 18000rpm / f: 50m/min <u>Standard</u> V: 12000rpm / f: 25m/min <u>Min</u> V: 10000rpm / f: 7m/min	DORMMER TOOL D.6mm - Hard Metal <u>Standard</u> V: 17000rpm <u>Standard</u> f: 12m/min	Disc D120x20 (13-12) Z4 High Speed Steel (HSS) <u>Standard</u> V: 5000rpm <u>Standard</u> f: 20m/min
larson fr larson specials (FR) larson wood (FR) larson metals Copper (FR) larson metals Brass (FR) larson metals Anodized (FR)	CERIN TOOL "V" $\alpha = 45^\circ$ - D.12mm - Hard Metal <u>Max</u> V: 12000rpm / f: 50m/min <u>Standard</u> V: 12000rpm / f: 25m/min <u>Min</u> V: 8000rpm / f: 7m/min	DORMMER TOOL D.6mm - Hard Metal <u>Standard</u> V: 12000rpm <u>Standard</u> f: 8m/min	Disc D120x20 (13-12) Z4 High Speed Steel (HSS) <u>Standard</u> V: 5000rpm <u>Standard</u> f: 20m/min
larson metals S.Steel (FR) larson metals Zinc (PE)	CERIN TOOL "V" $\alpha = 45^\circ$ - D.12mm - Hard Metal+TIALM <u>Standard</u> V: 2200rpm / f: 8m/min	IZAR TOOL D.6mm Hard Metal+TIALM <u>Standard</u> V: 4000rpm <u>Standard</u> f: 6m/min	Shears - Guillotine

1.3. Curving

larson[®] composite panel can be curved easily in curving machines of three or four rolls, ensuring that they are clean to avoid damaging the material.

- a) Curving of **larson**[®] composite panels of 3 or 4mm thickness.
 Manufacturing dimensions:
 - Curving maximum width: 4m (Length of the curving machine).
 - Minimum radius: 150mm.
- b) Curving of **larson metals**[®] **stainless steel** composite panels
 Manufacturing dimensions:
 - Curving maximum width: 4m (Length of the curving machine).
 - Minimum radius: 1000mm.
- c) Curving of 4mm thickness **larson**[®] cassette with folded edges.
 Manufacturing dimensions:
 - Minimum bending width: 150mm (the same as the caps width). Distance between the caps will be the same as the thickness of the panel, so that separation is where the edges will move during the curving process.
 - Curving maximum width: 4m. (The limit of the pyramid roller).
 - Maximum cassette route and return folds: 20mm

Notes:

- a) It is not recommended to curve cassettes with edges greater than 20mm as they could become twisted.
- b) To carry out the curving process, it is required to place a 2mm thick aluminium sheet between the panel and cap areas in order to avoid marking the teflon caps. If this sheet is not used, cap marks will appear on the panel surface.

- c) If the desired radius is greater than 1000mm, curving can be performed flat, bending the edges afterwards. For this reason, the initial curving radius should be smaller than the intended one, reaching the desired radius during the forming of the cassette. With this type of curving practice, the edge of the cassette will not remain completely flat some minor, subtle ripples will be visible on those edges.
- d) **larson metals® stainless steel** can be curved in cassette form with edges of 40mm in the folding sense.
- e) Due to 3mm composite panels low rigidity, it won't be possible to curve them on cassette form due to edge distorsion during the process.
- f) Alucoil should make a preliminary evaluation to verify every curving solution desired by the clients in order to assure its accurate execution.

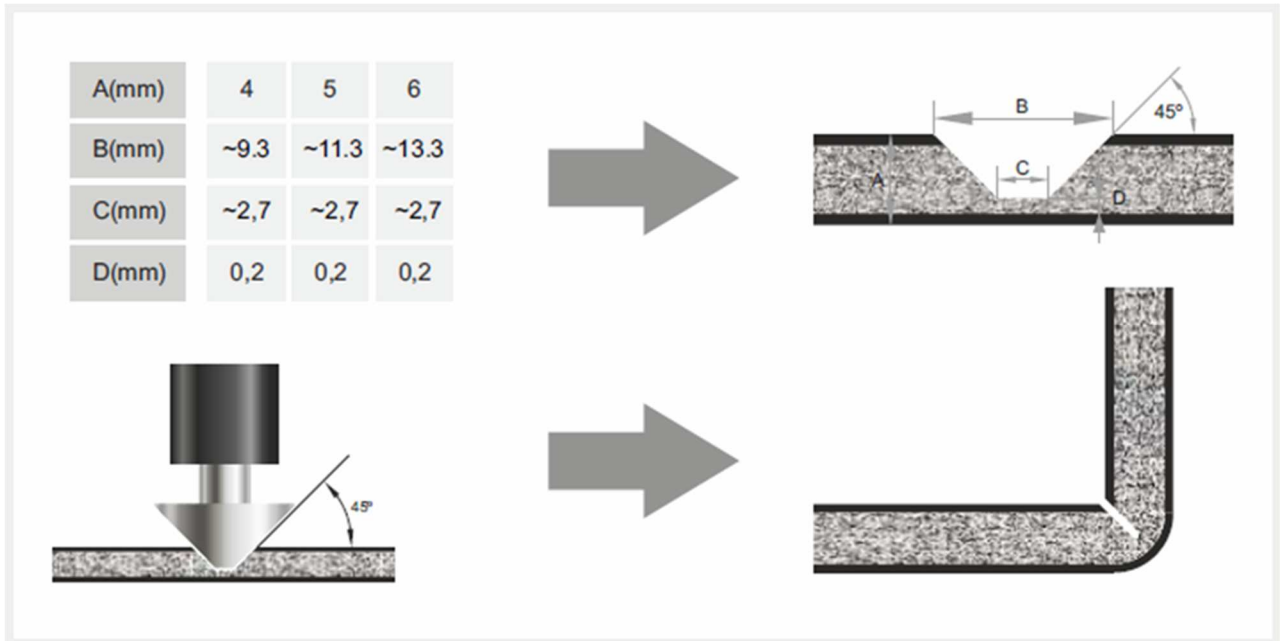
RADIUS (mm)	TOLERANCE (%)
150<R<1000	±7
1000<R<2000	±3.5
2000<R	±2

1.4. Bending

Panel area in contact with the tool and also the area leaning on the mold should be protected to prevent damages.

Types of routing:

- Bending to $\leq 90^\circ$, with tools which cutting angle reaches a perfect fold at 90° .
- Bending between $90^\circ < 180^\circ$, with tools which cutting angle allows a perfect fold at the customer's requested angles.
- To get the desired length, folding should accommodate half the width of the bottom of the routed channel which will be translated to the route and return folded edges.



1.5. larson[®] perforated

Whether by CNC or Punch Press processes, Alucoil offers the possibility to use round, square, triangular, star, and many other shapes in different perforation sizes and patterns.

As well as its use for wall cladding, the use of perforated composite panels for internal applications is a clear commitment to modern design.

Note:

Alucoil[®] will always carry out a preliminary analysis of the project for perforated **larson**[®] panels, manufactured in **Alucoil**[®] (Miranda de Ebro), before granting a guarantee.

Based on below abbreviations to designate perforation configurations, Alucoil offers a wide range of perforation patterns which provides each type of facade an exclusive design.

- “R”: Round (diameter of perforations).
- “U”: Parallel perforations (distance between axes).
- “T”: Perforations in a staggered formation (distance between axes).
- “C”: Square (side of square).
- “LC”: Rectangle (width x length).
- “LR”: Slotted holes (width x length).

Non-perforated perimeter areas will be indicated by the type of perforation and tool used for each case. To combine different diameters within the same panel, or special dimensions and perforations, please consult.

Main possibilities of punching of ACP

Length<6000mM - Width<1500Mm								
Round quincunx	R4T8,8	R5T9	R6T16	R7T17,5	R8T19	R10T14	R15T20	R20T27
Rounded parallel	R4U8,8	R5U13	R6U16	R6U25	R7U17,5	R8U19	R10U24	R20U46,8
Parallel square	C4U12	C8U21	C10U26	C20U40	C30U48	C30U60	C40U80	C70U140
Diagonal square	CD10M15				CD10U21			
Square side in parallel	LC4X20U26							

2. MAINTENANCE GUIDELINES FOR Iarson® AND IarcORE® AND FINISHES HQPE AND PVdF

This recommendation covers procedures for cleaning and maintaining coated aluminium roof covering and wall cladding.

The information contains recommended methods as an aid in establishing safe, sound cleaning and maintenance practices with respect to coated aluminium roof covering and wall cladding.

1. General Considerations

It is recommended that the building owner provide a qualified inspector who will see that the desired effect is being obtained with the use of sound cleaning and maintenance procedures.

Two inspections per year and associated cleaning of all areas is required for Limited Warranty coverage (cleaning and maintenance records should be kept and made available to Alucoil if they are required). Cleaning is vital in areas where industrial deposits have dulled the surface, where materials from construction processes have soiled the surface or where cleaner run-down from other surfaces should be removed. Local conditions as well as building location within a geographical area quite naturally have an effect on cleanliness.

Regular inspection and maintenance should consist of:

- Checking the condition of the sealants, fasteners and flashings to ensure water tightness
- Examining local defects (e.g. scratches) that may cause early deterioration of the coating or corrosion of the substrate
- Removing any blockage in gutters to avoid overflow or buildup
- Removal of leaves, grass, mould and other objects and debris
- Removal of dirt in areas of cladding not rinsed naturally by rainwater
- Removal of graffiti or other marks

Cleaning of coated aluminium may be scheduled with other cleaning. For example, glass and painted aluminium components can be cleaned at the same time.

Cleaning is specifically required in areas of low rainfall or in industrialized areas. Foggy coastal regions with cycles of condensation and drying may tend to cause a build-up of atmospheric salts and dirt. In any climate, sheltered areas, such as overhangs, may become soiled due to insufficient rainwater rinsing. Thorough rinsing is especially important after cleaning of these sheltered areas.

If automatic or pressure-based wall cleaning equipment is to be used on a building, a test should be made early in equipment design to ensure that the cleaning solutions, brushes, as well as the frequency of cleaning should be taken into consideration to ensure no detrimental effect on or to the coating.

After completion of the building, special attention should be paid to fixings, damages to the coating, drilling swarf, pop rivet systems and general building debris.

Construction soils, including concrete or mortar, etc. should be removed as soon as possible. The exact procedure for cleaning will vary depending on the nature and degree of soil. Try to restrict cleaning to mild weather. Cleaning should be done on the shaded side of the building or ideally on a mild, cloudy day.

Method of cleaning, type of cleaner, etc. of one component of the building must be used with consideration for other components such as glass, sealant, painted surfaces, etc.

2. Cleaning

- Removal of light surface soil:

Removal of light surface soil may be accomplished in several ways. Some testing is recommended to determine the degree of cleaning actually necessary to accomplish the task. Ideally, an initial step of forceful water rinse from the top down is recommended prior to any cleaner application. Significant benefit is gained with some type of surface agitation. Low water volume with moderate pressure is much better than considerable volume with little pressure. Physical rubbing of the surface with soft, wet brushes, sponges or cloth is also helpful.

The simplest procedure would be to apply the water rinse with moderate pressure to dislodge the soil. If this does not remove the soil, then a concurrent water spray with brushing or sponging should be tested. If soil is still adhering after drying, then a mild detergent will be necessary.

When a mild detergent (Ph7) or mild soap is necessary for removal of soil, it should be used with brushing or sponging. The washing should be done with



uniform pressure, cleaning first with a horizontal motion and then with a vertical motion.

Apply cleaners only to an area that can be conveniently cleaned without changing position. The surface must be thoroughly rinsed with clean water. It may be necessary to sponge the surface while rinsing, particularly if cleaner is permitted to dry on the surface. The rinsed surface can be air dried or wiped dry with a chamois, squeegee or lint free cloth.

Run down of cleaner (from any operation) to the lower portions of the building should be minimized and these areas should be rinsed as soon as and as long as necessary to reduce streaking etc. from unavoidable run down. Do not allow cleaning chemicals to collect on surfaces or to "puddle" on horizontal surfaces, crevices, etc.

These areas should be flushed with water and dried via air or wiped dry with a chamois, squeegee or lint free cloth.

Always clean coated surfaces down from top to bottom and follow with a thorough rinsing with clean water. (With one storey or low elevation buildings, it is recommended to clean from bottom up and rinse from top down). To avoid water stain, the surface should be wiped.

- Cleaning of medium to heavy soil:

Some type of mild solvent such as mineral spirits may be used to remove grease, sealant or caulking compounds.

Stronger solvent or solvent containing cleaners may have a deleterious or softening effect on coatings; accordingly, great care should be taken. To prevent harm to the finish, these types of solvent or emulsion cleaners should be soap tested and preferably the coating manufacturer should be consulted. Care should be taken to assure that no marring of the surface is taking place in this manner since this could cause an undesirable appearance at certain viewing angles. Cleaners of this type are usually applied with a clean cloth and removed with a cloth. Remaining residue should be washed with mild soap and rinsed with water. Use solvent cleaners sparingly.

It may be possible for solvents to extract materials from sealants which could stain the painted surface or could prove harmful to sealants; therefore, possible adverse effects must be considered. Test clean a small area first.

If cleaning of a heavy surface soil has been postponed or in cases of tenacious soil, stubborn stains, etc., then a more aggressive cleaner and technique may be required. Cleaner and technique should be matched to the soil and the painted finish. Some local manual cleaning may be needed at this point.

Always follow the recommendations of the cleaner manufacturer as to proper cleaner and concentration. Test clean a small area first. Cleansers should not be

used indiscriminately. Do not use excessive, abrasive rubbings as such may alter surface texture or may impart a "shine" to the surface.

Concrete spillage that has dried on the coated surface may become quite difficult to remove. Special cleaners and/or vigorous rubbing with non-abrasive brushes or plastic scrapers may be necessary. Diluted solutions of Muriatic Acid (under 10%) may be effective in removing dried concrete stains; however, a small test clean area should be tried first, and proper handling precautions must be exercised for safety reasons.

Never mix cleaners. Doing so may be ineffective, and worse, very dangerous. For example, mixing chlorine containing materials, such as bleaches, with other cleaning compounds containing ammonia can cause poisonous gas emissions. Always rinse the coated material after removal of heavy surface soil.

Summary of general cleaning tips

- Overcleaning or excessive rubbing can do more harm than good.
- Strong solvents or strong cleaner concentrations can cause damage to painted surfaces.
- Avoid abrasive cleaners. Do not use household cleaners that contain abrasives on painted surfaces.
- Abrasive materials such as steel wool, abrasive brushes, etc. can wear and harm finishes.
- Avoid drips and splashes. Remove run downs as quickly as possible.
- Cleaning should be done in shade at moderate temperatures. Avoid temperature extremes. Heat accelerates chemical reactions and may evaporate water from solution. Extremely low temperature may give poor cleaning effects. Cleaning under adverse conditions may result in streaking or staining.
- Do not substitute a heavy duty cleaner for a frequently used mild cleaner.
- Do not scour coated surfaces.
- Never use paint removers, aggressive alkaline, acid or abrasive cleaners, phosphate or highly alkaline or highly acid cleaners.
- Follow manufacturers recommendations for mixing and diluting cleaners.
- Never mix cleaners.
- To prevent marring, make sure cleaning sponges, cloth etc. are grit free.
- Always test clean small surface.
- "An ounce of prevention is worth a pound of cure".

3. Repair

Damage may be found on the surface of the coating when cleaning or otherwise maintaining the coated roof covering or wall cladding. Paint repair should be restricted to small areas (max. 5.0 m²).

¡Any significant repair work should be informed Alucoil!

Execution when no corrosion is found:

- The damaged surface should be washed and dried as described above.
- A recommended touch-up paint should be applied for protective and aesthetic reasons.

Execution with small corrosion defects:

- Remove the dust by abrading, scraping, and sand blasting to the bare material.
- Degrease the complete surface.
- Clean and dry the surface (as described above) before applying a repair paint system (primer and top coat) recommended by the material supplier.

4. Overpainting

If it is deemed necessary to re-paint or re-clad large surfaces, contact Alucoil before execution.

Investigating the economic feasibility of over-painting the existing structure or replacing the coated sheets is recommended.

In case of any questions about overpainting please contact us. Using non-compatible systems of repair paints and original coated surfaces might cause undesired effects.

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