



SPECIFICATION & APPLICATION GUIDE

GacoFlex U91 + U92

Urethane Roof & Deck Systems

A two-product polyurethane waterproofing system — the U91 moisture-cure base coat under the U92 UV-stable aliphatic wearing coat. For aged metal and asbestos cement roofs, trafficked balconies, walkways and decks, and as the protective finish over spray foam.

CHEMISTRY

Moisture-cure PU

SYSTEM

**U91 base +
U92 top**

WARRANTY

10 / 20 yr

SURFACES

**Metal · Asbestos cement ·
Decks · Foam**

EDITION

2026

SECTION ONE

1

Purpose & Scope

This guide details the application of the **GacoFlex U91 + U92 polyurethane coating system** — a cold-applied, liquid waterproofing membrane for the refurbishment of **aged metal roofing**, the overcoating of **asbestos cement roofs**, **trafficked balconies**, **walkways and decks** (plywood or concrete), and as the protective wearing surface **over spray foam**. The U91 aromatic base coat does the waterproofing; the U92 aliphatic top coat takes the sunlight and the traffic. Film build determines the warranty: **0.61 mm / 24 mil** dry for the 10-year system, **0.91 mm / 36 mil** dry for the 20-year system.

STEP 1 · CLEAN

Wash & Biocide

Pressure wash; treat moss & algae with Sollac Hipolava 20:1.

STEP 2 · REMEDIATE

Fasteners & Seams

Re-secure panels, replace failed fixings, seal laps & flashings.

STEP 3 · PRIME

Substrate Primer

Matched to substrate — epoxy on metal & concrete, LVOC on single-ply.

STEP 4 · BASE

GacoFlex U91

0.41 L/m² per coat → 0.30 mm / 12 mil dry film each.

STEP 5 · TOP

GacoFlex U9200

UV-stable aliphatic wearing coat — one coat (10-yr) or two (20-yr).

SECTION TWO

2

The System — Three Core Products

Waterproofing comes from the base coat; longevity comes from the top coat. They are different chemistries by design — **aromatic urethane is the stronger, more economical membrane but yellows in sunlight**; **aliphatic urethane is UV-colour-stable and shields everything beneath it**.



PREP · CLEANER

Sollac Hipolava

Biocidal dilute-in-water cleaner

Kills and lifts moss, algae & lichen ahead of coating. Dilute, apply, dwell 10–15 minutes, rinse.

DILUTE

20:1

STATUS

REQUIRED IF BIOLOGICAL GROWTH



BASE COAT

GacoFlex U91

Single-component moisture-cure PU

The waterproofing membrane. 80% solids, 350% elongation, 17.9 MPa tensile, Shore A 90. Meets ASTM C957 for pedestrian & vehicular decking.

COAT RATE DFT / COAT

0.41 L/m² 0.30 mm · 12 mil

STATUS

REQUIRED



TOP COAT

GacoFlex U9200

Aliphatic urethane wearing coat

UV-stable, highly reflective white finish (CRRC-rated). 627% elongation, excellent adhesion to U91, low-temperature flex to -26 °C.

COAT RATE SOLAR RI STATUS

0.41 L/m² SRI 107 REQUIRED


Choosing urethane or silicone? Ponding flat roofs and non-trafficked surfaces are Gaco S42 silicone territory (see the S42 guides). Choose U91 + U92 where the surface takes **foot or vehicle traffic**, where **abrasion resistance** matters, or where spray foam needs a hard protective skin. Never mix the two: **U92 must not be applied over silicone**.

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SECTION THREE

3 Why a Two-Chemistry System — and What You Get

Base does the waterproofing, top does the surviving

GacoFlex U91 is an aromatic moisture-cure polyurethane: tough (tensile 17.9 MPa, tear 360 pli), highly elastic (350% elongation) and near vapour-tight (0.02 perm-inch). Aromatic urethanes discolour under UV — which is why the system never leaves U91 exposed.

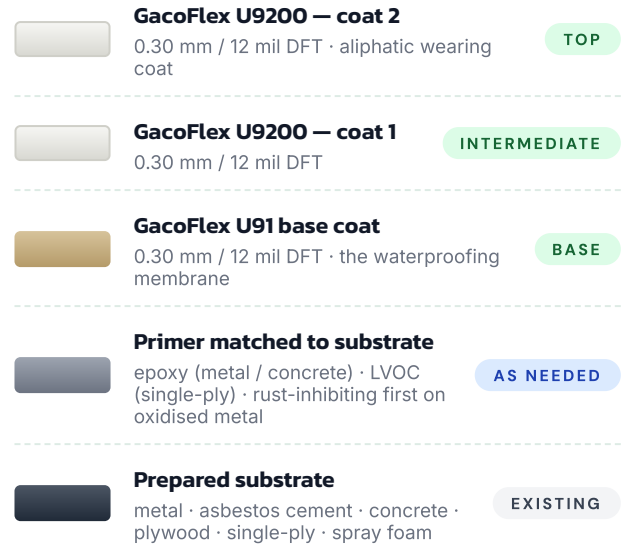
GacoFlex U9200 is aliphatic: its bonds do not break down in sunlight, so the white finish stays white and the membrane beneath stays protected. It is also the wearing surface — abrasion tested to 35 mg/min (ASTM C501), roughly a third better than the C957 decking requirement.

Where the system earns its keep

- **Trafficked surfaces** — balconies, walkways, plant-room floors and podium decks. U91 exceeds ASTM C957 for pedestrian *and vehicular* traffic on concrete and plywood.
- **Aged metal roofs** — renews weathered profiled steel and galvanised sheet; Class A external fire spread (ASTM E108) on metal.
- **Asbestos cement roofs** — overcoats and seals failing sheets without disturbance (see safe-work rules, page 4).
- **Over spray foam** — a hard skin that stops bird pecking and UV attack on exposed closed-cell foam.
- **Cool roof** — U9200 White reflects 85% of solar energy (SRI 107 initial). On metal roofs that means lower surface temperatures and less daily expansion-contraction stress on fixings and laps.

! Never over silicone. Urethanes will not bond to silicone-coated surfaces. If the roof has ever had a silicone coating, stay in the silicone system (S42). And keep U91/U92 off cold-store and cryogenic buildings — constant inward vapour drive is outside the system's design.

SYSTEM BUILD-UP — CROSS-SECTION (20-YEAR BUILD SHOWN)



10-yr System — 2 coats

BUILD-UP
U91 + U9200

TOTAL DFT
0.61 mm · 24 mil

20-yr System — 3 coats

BUILD-UP
U91 + U9200 × 2

TOTAL DFT
0.91 mm · 36 mil

- ✓ **Labour-and-material warranty.** At the 36 mil / 0.91 mm build, a **20-year manufacturer warranty covering labour and material** is obtained through the manufacturer on registered, inspected installations. Duratite handles registration on supplied projects.

Performance data at a glance

PROPERTY	GACOFLEX U91 (BASE)	GACOFLEX U9200 (TOP)	TEST
Tensile strength	17.9 MPa (2600 psi)	6.27 MPa (910 psi)	ASTM D412 / D2370
Elongation at break	350%	627% (578% after 1,000 h UV)	ASTM D412 / D2370
Hardness	Shore A 90 ± 5	Shore A 90 ± 5	ASTM D2240
Tear resistance	360 pli	223 lb/in	ASTM D624
Water vapour permeability	0.02 perm-inch	6 perms at 20 mil DFT	ASTM E96
Solids by volume	80%	77%	ASTM D2697

SECTION FOUR

4 Surface Preparation — Clean, Dry, Secure

Coating failures are preparation failures. The substrate must be **clean, dry and structurally sound** before any primer or coating goes down — and adhesion tests (wet and dry, per Gaco GW-1-3) are strongly recommended before pricing or starting work.

STAGE	WHAT TO DO
1 · Inspect & secure	Sweep off debris. Re-tighten or replace missing, corroded or failed fasteners (oversize screws where holes have opened). Check laps, seams and tension straps; re-secure with butyl caulk and new fixings where panels have separated.
2 · Wash	Pressure wash and detergent-clean the whole surface, working from the low point up, then rinse until all residue is gone. Keep the surface wet until rinsing is complete.
3 · Biocide	Moss, algae or lichen: apply Sollac Hipolava at 20:1 , leave to dwell 10–15 minutes, agitate heavy growth with a broom, then rinse clean.
4 · Rust	Lightly abrade loose surface rust on sound panels and treat with a rust-inhibiting primer . Rust-primed areas then take two coats of GacoPrime LVOC before the base coat.
5 · Dry	Let the roof dry fully — check laps, repairs and low spots for trapped water before priming. Cold or overcast weather extends drying time.

! **Asbestos cement — non-negotiable rules.** Never cut, drill, grind or abrade asbestos cement sheets, and never high-pressure wash them — both release fibres. Clean with low-pressure methods and biocide only. Sheets are **fragile**: work from boards, crawl ladders or netted access, never directly off the sheets.

i **Which metal roofs qualify?** Steel aged at least one year (or treated galvanised), anodised aluminium and most pre-finished sheets. Siliconized or fluorocarbon (PVDF) finishes need an adhesion test first. Panels must be sound, free of deflection, with positive drainage (2:12 or steeper under the metal-roof spec).



Survey photo, Bristol: an aged asbestos cement roof with heavy moss growth and corroded fixings — specified for a foam + U91/U92 overcoat system. This is the condition preparation has to reverse before any coating goes down.



Same survey, at the eaves: biological growth concentrated along gutter lines and fixing rows — exactly where Hipolava dwell time and fastener remediation earn their keep.

Pre-start checklist — five gates before the first primer coat

GATE 1

Adhesion tested

Wet & dry pull tests passed (Gaco GW-1-3) on the actual substrate.

GATE 2

Clean & biocide-treated

Washed, rinsed residue-free, biological growth killed and removed.

GATE 3

Bone dry

Laps, repairs and low spots checked for trapped water.

GATE 4

Structurally secure

Fasteners re-set, seams re-secured, repairs completed & accepted.

GATE 5

Weather window

Above 4.5 °C, 3 °C over dew point and rising; no rain due before skin-over.

SECTION FIVE

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Priming & Detailing — Matched to the Substrate

Primer selection

SUBSTRATE	PRIMER	RATE & FILM	NOTES
Single-ply membranes	GacoPrime LVOC	18–23 m ² per 3.8 L · 0.15–0.20 mm / 6–8 mil WFT	Brush, 10 mm nap roller or airless; do not let it puddle. Touch-dry to a slightly tacky film in ~2 h.
Metal & asphalt	GacoFlex E5320 2-part epoxy primer/filler	Per datasheet	The standard metal-roof primer; also fills pitting on weathered sheet.
Concrete decks	GacoFlex E5691 epoxy sealer	Per datasheet	Water-reducible epoxy; seals dust and gives U91 its specified bond.
Oxidised / rust-treated metal	Rust-inhibiting primer, then GacoPrime LVOC × 2	Two full coats over treated areas	Allow each primer coat to cure (~2 h) and finger-test the tack before coating.

Seams, laps, corners & penetrations — choose one detail method

OPTION A · MESH-REINFORCED

U91 + 66S polyester mesh

U91 at 1.5 gal/100 ft² (0.61 mm / 24 mil WFT) in a 152 mm band centred on the seam; embed 102 mm GacoFlex 66S mesh smooth — no wrinkles, fish-mouths or pinholes — then encapsulate with a second equal coat once firm. Cure 10–12 h between coats.

OPTION B · MASTIC

GacoFlex UF9022 GacoMastic

76 mm band crested and centred on the seam at ~70 linear ft per gallon; minimum 1.6 mm / 64 mil WFT measured at centre. Allow a minimum 40 h at 24 °C / 55% RH to reach full cure before overcoating.

OPTION C · SEALANT

GacoFlex H.E.R. sealant

Same 76 mm crested band and 1.6 mm / 64 mil minimum WFT; ready to overcoat in 12–24 h at 24 °C. Apply above 4.5 °C and at least 3 °C above dew point, on a rising temperature.

Rooftop plant. Units on timber sleepers get lifted, the membrane beneath cleaned, primed where needed and coated — with a slip sheet placed between sleeper and new coating. Anything not lifted is excluded from the warranty, so plan the lift before pricing.

Repairs before coating. Fix every leak and flashing defect in like-for-like materials first — the coating system waterproofs a sound roof; it is not the repair itself. Newly repaired areas are primed as their substrate type requires.

Cure & recoat quick reference

STAGE	READY TO OVERCOAT	CONDITIONS ASSUMED
GacoPrime LVOC primer	~2 h — dries to a slightly tacky film; finger-test before coating	Ambient cure; longer when cold
U91 seam coat with 66S mesh	10–12 h between embed and encapsulation coats	24 °C / 50% RH
GacoMastic (UF9022) details	Minimum 40 h to full cure	24 °C / 55% RH
H.E.R. sealant details	12–24 h	24 °C / 45% RH
U91 / U9200 field coats	10–12 h between coats; U9200 full cure ~24 h	Faster warm & humid, slower cold & dry
Finished surface	No foot traffic for 3 days minimum	Longer before vehicles on decks

SECTION SIX

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Applying the Coats — Rates, Films & QA

COAT	PRODUCT	RATE	WET FILM	DRY FILM	RECOAT WINDOW
Base	GacoFlex U91	0.41 L/m ² (1.0 gal / 100 ft ²)	0.41 mm · 16 mil	0.30 mm · 12 mil	10–12 h at 24 °C / 50% RH
Intermediate 20-YR ONLY	GacoFlex U9200	0.41 L/m ²	0.41 mm · 16 mil	0.30 mm · 12 mil	10–12 h
Top	GacoFlex U9200	0.41 L/m ²	0.41 mm · 16 mil	0.30 mm · 12 mil	Full cure ~24 h

Working the material

- **U91:** mix mechanically (Jiffy-type mixer). Thinning is typical — up to 10% with GacoFlex T5112 or T5120, never more. Pot life 2–3 hours once open; decant what you will use.
- **U9200:** mix thoroughly; no thinning needed. Pot life is unlimited while sealed from atmospheric moisture. Brush or roller application.
- Never exceed 1.5 gal / 100 ft² (0.61 L/m²) in a single coat — thick wet films skin, solvent-trap and blister.
- Coat everything — field, expansion-joint covers and every flashing detail get the full build.
- Warm, humid weather speeds moisture-cure urethanes up; cold, dry weather slows them down. Plan recoat windows accordingly.

Quality control

- Check wet film with a comb gauge as you go — every operative, every mixing batch.
- Add a **10% variance factor** when calculating material: the warranty is on *minimum* dry film, not average.
- No foot traffic on the finished surface for **3 days minimum**; longer before vehicle traffic on decks.
- Photograph each stage — prep, primer, base, top — for the warranty file.



Material take-off rule of thumb. One 18.9 L (5 US gal) pail of U91 or U9200 covers ~46 m² per coat at the specified rate — before the 10% variance factor and detail work. Duratite will produce an exact take-off from your roof dimensions.

Materials & where to buy

PRODUCT	ROLE	PACK	COVERAGE GUIDE
GacoFlex U91 (U9101 Oyster / U9102 Pewter)	Base membrane	18.9 L pail	~46 m ² per coat
GacoFlex U9200 White	Aliphatic wearing / reflective top coat	18.9 L pail	~46 m ² per coat
Sollac Hipolava	Biocidal pre-clean	5 L (dilutes 20:1)	~100 m ² diluted
GacoPrime LVOC / E5320 / E5691	Substrate primers	Various	LVOC: 18–23 m ² per 3.8 L
66S mesh · GacoMastic · H.E.R.	Seam & detail options	Roll / pail / tube	Per detail method, page 5

Live pricing, stock and next-day delivery on every line: duratite.co.uk/shop — or call **01208 832602** for a project take-off and trade rates. No prices are printed in this guide so it never goes out of date.

WORKED EXAMPLE — 500 M² METAL ROOF, 20-YEAR SYSTEM

U91 base coat: 500 m² ÷ 46 m² per pail = 10.9 pails → × 1.10 variance factor = 12.0 → **12 pails**. **U9200 × 2 coats:** (500 m² × 2) ÷ 46 = 21.7 pails → × 1.10 = 23.9 → **24 pails**. Primers, seam materials and detail work are additional and measured from the roof's laps, fixings and penetrations — every Duratite take-off shows this derivation line by line, so you can check the maths, not just the total.

SECTION SEVEN

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Safety, Compliance & Getting It Specified

Health & safety essentials

- **Isocyanates.** Both products contain isocyanates (U91: a TDI prepolymer). Follow the SDS: ventilation, gloves, eye protection, and respiratory protection when spraying.
- **Flammable solvents.** U91 flashes at 37 °C — no smoking, no hot works nearby; post signage as required.
- **Overspray.** Protect windows, facades, parked vehicles; post overspray notices within 120 m (400 ft) of spray application, and ground all spray equipment.
- **Building occupants.** Switch off air-intake ventilation while coating so fumes are not drawn inside.
- **Fragile roofs & asbestos.** Follow the page-4 rules: no disturbance of asbestos cement, board-and-net access on fragile sheets.

Compliance snapshot

Decking standard	Exceeds ASTM C957 (pedestrian & vehicular, IBC/IRC 2020)
External fire	Class A flame spread, ASTM E108 (metal & concrete substrates)
Cool roof	U9200 White CRRC-rated — SRI 107 initial / 90 aged
Abrasion	35 mg/min (ASTM C501) — heavy-traffic capable
Elongation	U91 350% · U9200 627% (ASTM D2370)
Low-temp flex	Pass at -26 °C (ASTM D522)

A system with a live UK project behind it



Bristol survey detail: penetrations and flue flashings on an asbestos cement roof specified for a Duratite foam + U91/U92 system — the urethane top coats chosen specifically to protect the foam from bird pecking. Completion photography will follow in the next edition of this guide.

Why specify it through Duratite

TAKE-OFFS

Exact material schedules from your dimensions — pitch and profile allowances included, nothing left to guesswork.

WARRANTY HANDLING

Registration and film-build documentation for the 10 / 20-year manufacturer warranty on supplied projects.

TECHNICAL SUPPORT

Real answers from people who put these systems on UK roofs — adhesion testing, primers, sequencing, weather calls.

STOCK & DELIVERY

Held UK stock, next-day delivery available, trade accounts with 30-day terms for contract buyers.



Speak to a Duratite expert: 01208 832602 ·

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S42 Flat Roof Application Guide

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GUIDE / S42-PR

S42 Pitched Roof Application Guide

Metal, cement fibre & asbestos pitched roofs — silicone with pitch & profile allowances explained.

GUIDE / U91U92-RF

This guide — Urethane Roof & Deck

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