

A shipping container is built to survive salt air, storms, and years sitting half-forgotten on a port. That durability is exactly why people think painting will be straightforward. You wipe it down, roll on a couple coats, and you are done. In practice, the container's surface tells a different story. It might be painted at the factory, lightly rusted in seams, contaminated with cargo residue, or covered in mill scale that needs more than a casual sanding.

If you take the surface seriously, the paint system you choose will actually perform. If you rush, the coating can blister, peel, or fail at edges and welds where corrosion keeps happening behind the scenes. Below is the process I rely on, with practical material choices and the decisions that matter most.

Start with the real goal, not the paint can

People paint containers for different reasons: curb appeal, rust control, heat management, privacy screening, or making a living space feel finished. Those goals influence the paint type, the sheen, and even how much prep you're willing to do.

A container outdoors in full sun and coastal wind is a tougher job than an indoor container. High gloss coatings often look sharp, but they can highlight imperfections. Flat or satin finishes hide surface flaws better, yet they may show scuffing sooner. If the container will hold a workshop, a home office, or living space, you also have to think about odor and off-gassing while it cures. Most coating systems require airflow and time. Planning around that is part of good workmanship, not an afterthought.

One practical way to frame the job: determine how you want the container to look after a year, not after a week. Then work backward from a coating system designed for that environment.

Know what you are painting over: factory coating, mill scale, and rust

Before you buy anything, inspect the container as if you're troubleshooting paint failure. Look at:

- the corners and weld seams where condensation and salt collect
- areas under former logos or stickers that trapped grime
- bottom rails and door edges where water lingers
- any spots where you can scrape rust or see orange powder

A container can show multiple conditions at once. You might have factory coating still intact, plus surface rust around fasteners and seams. You might also see black, scaly areas that are mill scale or older coating that never fully bonded.

The key point is simple: paint systems do best when they are applied to a surface they can grip. That means you either remove contaminants and loose material <https://www.philspace.co.uk/news/cool-container-workshop-conversions/> thoroughly, or you use a primer that is designed to bond to the surface you still have.

Cleaning: the part everyone underestimates

Cleaning is not one step. It's the sequence of removing oil, dust, salt residues, and general grime so the next materials can do their job.

On most containers, the biggest contaminants are not just visible dirt. You get residues from storage and transport, including oily film and brake dust. If you skip this and go straight to sanding or painting, you often get

peeling where the coating fails to wet out.

I usually plan on two phases:

First, wash the container with a detergent designed for removing oils and road grime. Use enough water to carry away the loosened contamination, not just spread it around. A stiff brush helps, especially around seams. If you have access to a pressure washer, keep the nozzle moving. Too close or too long in one spot can drive water into seams or lift old coatings in a way you did not intend.

Second, after the container dries fully, address any remaining rust and surface residue. Many people think “dry” means no puddles. I mean dry enough that you can touch a seam without feeling cool dampness, especially during humidity. If you paint over moisture, it can turn into trapped vapor later, forming bubbles or lifting the coating.

A quick judgment call on degreasing

If the container has a strong odor when you clean it, that’s often an oily film or residue still present. On a few jobs, I’ve needed to repeat degreasing after the first wash because the container kept beading and repelling water in certain areas. Water behavior is a clue, not a guarantee, but it’s a useful one. If water beads heavily after cleaning, assume you still have a contaminant and take the time to repeat the wash or use a stronger degreaser as directed by the product label.

Surface prep: rust removal and profile matter

After cleaning, the surface has to be either properly profiled for adhesion, or returned to a stable baseline. Here is where most paint schedules die.

For light surface rust

If the rust is limited to orange freckles or light powdering, sanding or wire brushing can knock it back. The goal is to remove loose material and create a surface the coating system can grip. You’re not trying to make the metal mirror-smooth, you’re trying to remove the weak layer.

In practice, a mechanical method works well: wire brush on seams, abrasive pads on larger areas, and sandpaper for edges and corners. You want to stop when you reach a consistent, bonded surface. If rust comes off like powder easily, you keep going until it’s not like that anymore.

For active rust, scaling, or heavy degradation

If you have thick rust, flaking paint, or scaling, you may need more aggressive prep. Sanding alone can take too long and leave “shadow rust” behind. In that case, abrasive blasting is the cleanest reset, assuming you have the setup to do it safely and effectively.

I’m careful about sandblasting decisions because they’re environment and health dependent. If you’re working in a residential area or without containment, blasting can create airborne hazards. You can still achieve good results with grinding and sanding, but you need to accept time and labor.

About “conversion” primers

Some products are designed to chemically convert rust. They can help when you cannot remove every trace of rust. They’re not a magic eraser for heavy corrosion, but they can reduce the pace of corrosion under the primer when used as directed.

My approach is to treat conversion primers as a tool for situations where mechanical removal is limited, not as a substitute for good prep. If the surface is actively flaking, no primer will bond well to failing substrate.

Choosing materials: a coating system that makes sense

A container is exposed to temperature swings, UV radiation, and mechanical impacts. That combination punishes coatings that are too thin, too soft, or not matched to the substrate.

When people ask what “type” of paint to use, I ask one question back: where will it live, and how long do you want it to last? That answer determines the system.

Common coating approaches

There are two practical routes most owners take.

The first is a full repaint system designed for metal, usually including:

- a corrosion-inhibiting primer
- a mid coat or direct-to-metal coating
- a topcoat for UV resistance and appearance

The second route is using a primer that addresses rust and bonding, paired with a topcoat that is formulated for exterior metal and abrasion resistance. Some products are marketed as multi-purpose, but even “one product systems” still benefit from proper surface prep.

I generally steer toward coating systems intended for exterior steel. Specialty marine coatings can perform well, but they can also be overkill and sometimes more expensive than the job needs. The best choice depends on your exposure and budget.

Primer selection matters more than people think

A primer is not just a base coat. It’s the layer that provides corrosion control and adhesion. If you use the wrong primer type for the existing surface condition, the coating can fail early even if the topcoat looks good at first.

For containers with rust present, choose a primer that is compatible with that condition and the temperature range you will paint in. Many primer and topcoat systems also have application limits, including minimum surface temperature and maximum humidity. Read the label carefully, because “it was dry enough” can still be too humid for certain coatings to cure correctly.

Topcoat sheen and durability

A satin or semi-gloss topcoat tends to be a solid choice for durability, scuff resistance, and cleaning. Flat paints can look excellent, especially on textured surfaces, but they can get dirty and scuff-marked faster.

If you expect frequent contact, tools, or chairs scraping the wall, a harder sheen often holds up better. For purely aesthetic needs, you can choose based on appearance, but I still try to prioritize a topcoat designed for exterior metal.

Weather and timing: painting is a scheduling problem

Coatings need proper conditions to cure and bond. Temperature, humidity, and wind all matter.

If you can, paint during stable weather, ideally when the container is not baking in direct sun for the whole day. Too hot can cause rapid solvent evaporation and poor leveling. Too cold can slow cure and leave the coating vulnerable.

Humidity is a sneaky enemy. Some coatings are more forgiving than others, but many require a certain window where the surface stays dry and the coating can cure without trapping moisture. If fog or dew forms overnight, plan for a day with lower overnight humidity, or wait longer between coats.

A practical sign to hold off: if the container surface feels cool and slightly damp in the morning, you'll likely run into adhesion or curing problems. Let it warm and fully dry before you start.

A step-by-step workflow that holds up

This is the workflow I follow on most container repaint jobs. It's not the only way, but it's a sequence built around adhesion and corrosion control.

1. Inspect and mask what needs protection

Check drains, door tracks, hinges, and any areas you want to keep functional. Decide early whether you will paint around door seals and how you'll treat weep holes. Protect glass, hardware, and any areas that should remain bare for mechanical operation.

2. Clean thoroughly, then let it dry completely

Use detergent or an approved degreaser, scrub seams and corners, rinse well, and allow full drying. If water beads strongly after drying, repeat the cleaning.

3. Remove loose rust and failing coatings

Sand, wire brush, grind, or blast depending on condition. Stop only when the surface is stable and free of loose scale. Vacuum dust and wipe down per product instructions.

4. Apply primer suited to the surface condition

Brush into seams and welds first so you don't rely solely on spray coverage. Then roll or spray the broader panels. Apply at the thickness and coverage rate the label specifies.

5. Topcoat with the right system and cure time

Apply the topcoat in the method you can control, roll and brush for edges, spray for large panels if you have the setup. Respect recoat windows, and keep the container ventilated while curing.

That last point about ventilation matters even when it feels outdoors. Coatings cure by chemical and physical processes, and airflow affects how well solvents dissipate and how consistent the film forms.

Application method: roller, brush, or spray

You can paint a container with a roller, a brush, and patience, but speed often pushes people toward spraying. Spraying can look great and cover quickly, but it demands a controlled environment and careful masking. Over-spray can coat edges you didn't intend to seal, and it can contaminate ventilation openings.

Rolled systems tend to be more forgiving if you work slowly and watch for thin spots. Brushes are great for seams and edges but can leave heavier marks if you overload the brush.

My rule of thumb: for containers, brush and roller is usually the safest path for beginners and for detail work around seams. If you spray, practice on a scrap surface first and plan for ventilation, overspray control, and proper cleanup.

Film thickness and “too thin” coatings

People often underestimate how much paint is actually needed. Two containers can look similar, but the actual surface profile and corrosion removal method affects how much primer and topcoat you consume.

If you thin coating too much to improve flow, you can end up with a film that dries thin and wears faster. If you apply too thick, you can get runs, long cure times, or poor durability.

The label will list coverage in square meters or square feet per volume. Use that as a budgeting tool, not as a perfect rule, since roughness can increase consumption. If you estimate your area and buy the bare minimum, you will likely run short at the worst time, right when you are trying to finish around the door framing.

I typically buy a little extra for primers, because edges and seams soak product differently than flat panels. Plan for touch-up too. Containers always have a surprise spot: a thin rust line you didn't notice, a scratch from delivery, or a weld bead that drank primer.

Drying, recoat windows, and cure time

A big source of failure is not just prep, it's timing. Recoat windows matter because you want chemical bonding between layers, but you also need the previous coat to be dry enough not to trap solvents.

If you recoat too early, you can drag the film or soften the previous coat. If you wait too long, you may still be fine, but some coatings require sanding or additional prep to ensure adhesion.

Cure time is different from “dry to the touch.” A container that feels dry might not be fully cured, especially when humidity is high. If rain hits before full cure, you can lose gloss, cause streaking, or weaken adhesion. While weather can't always be controlled, your schedule can. If there's any chance of precipitation, plan so the container can cure through the risk window.

Edge cases: seams, welds, and door areas

On containers, the failure points are almost always the edges. You have weld seams, cut edges, corners, and door hardware areas that experience movement and water intrusion.

When prepping seams, remove rust thoroughly and make sure primer gets into the creases. When topcoating, don't assume overspray or broad coverage is enough at a weld. I often brush primer along weld lines first, then roll or spray the panel, then inspect and touch up.

Door areas are a special situation. If you coat door tracks or seals, you can create sticking issues or compromise sealing. Many owners mask tracks and hinges. If you want a uniform look, it might mean you accept that the door edge trim will be touched up later for full coverage.

Also watch for drip lines. If you don't manage how the paint flows, you can create runs that later chip and expose bare metal. Runs are ugly, but more importantly, they can create thin spots where corrosion restarts.

Practical numbers for planning materials and labor

You can paint a container in a weekend if the surface is in decent condition and weather cooperates. You can also spend days preparing if rust is widespread and the container needs aggressive removal.

A rough planning approach:

- If the container is relatively clean with minor rust, expect prep to take most of the time, not the painting.
- If the container has heavy rust, allow significant extra time for mechanical removal and additional primer.

Material quantity depends on surface condition and coating type. If you already know the approximate dimensions of your container, calculate square footage including both sides and any end panels. Then add an additional margin for seams, edges, and touch-ups. Getting the math wrong is common, especially if the container has deep corrugation or textured panels. Those ridges create more surface area than a person expects.

Safety and cleanup: don't treat it like house paint

You're working with solvents, dust, metal particles, and often strong fumes. Even if the paint products are "low odor," treat them seriously.

Wear appropriate respiratory protection when sanding, grinding, or scraping rust. Use eye protection. Gloves matter because many primers and topcoats are harsher than typical interior paint.

When cleaning up tools, follow the product instructions for cleanup solvent and disposal. Don't pour leftover coating or solvents into drains, even if it seems like it will "just go away." Local regulations differ, but safe disposal is always the correct direction.

If you are blasting, you need a much stronger containment and respiratory approach than simple sanding. It's a different level of risk.

What good work looks like after the job

After painting, you should see an even film without obvious thin patches, missed seams, or rough overspray patterns. Touch the surface lightly once it is cured: it should feel consistent, not tacky or powdery.

Check the corners and seams from a few angles. Most defects show up first there:

- missed primer spots
- small chips where the paint did not bridge the edge
- small runs that later will break

If you spot bare metal during the first inspection window, touch up promptly. Small repairs are much easier early than after the coating fails and you have to re-prepare the area.

Longevity: how to keep the container looking good

Even the best coating system can be shortened by neglect. A container's life gets easier when you treat maintenance like part of the plan.

Wash the exterior occasionally if it's exposed to coastal salt, road dust, or industrial fallout. Don't pressure wash with a stream so close that it chips the coating. Use a gentler approach unless you are intentionally cleaning preparation residue.

If you get a scratch, touch it up fast. The worst corrosion usually starts where metal is exposed, and containers expose metal through wear and impact more often than people expect.

Choosing between DIY and pro support

Painting a container yourself is doable, especially if you can manage prep and scheduling. The bottleneck is often surface prep, not painting. If you have tools, time, and a place to work safely, DIY can deliver a satisfying result.

Professional support can be worth it when:

- the container has heavy rust and requires blasting
- you want sprayed, uniform finish over large surfaces
- you need a coating system with strict film thickness controls
- you're working in a space where containment is required

I've seen DIY jobs that look excellent because the owner handled prep obsessively. I've also seen pro jobs fail when the surface prep was rushed, because painting never fixes contaminated metal.

If you are deciding whether to do it yourself, look honestly at the rust condition and the environment. Preparation effort is the real dividing line.

Materials overview: what you typically need

For most exterior container repaint projects, you will gather cleaners, abrasives, primers, topcoats, and basic painting tools. The exact product brands depend on your container condition and local climate, but the categories matter.

Here is the material list I consider standard, keeping the number of items manageable:

- rust removal tools (wire brushes, sanding discs, abrasive pads, or blast media if using blasting)
- a detergent/degreaser for cleaning and degreasing
- primer designed for corrosion control and adhesion to steel in the condition you have
- exterior topcoat formulated for metal, UV exposure, and abrasion resistance
- masking supplies and applicator tools (brushes for seams, rollers, and trays, or spray equipment if you use it)

If you choose a multi-product system, follow the manufacturer's compatibility guidance. Mixing primers and topcoats from different systems can work in some cases, but it can also lead to adhesion issues if the chemistry is not intended to pair.

Final checklist before you open the first can

This job succeeds or fails before the first coat is applied. Take one more pass through your decisions, especially if the container has any rust at all.

Confirm the surface is clean and fully dry. Confirm you removed loose rust and created a stable profile. Confirm the primer and topcoat are compatible and rated for exterior metal use. Then confirm the recoat window and weather forecast align with curing time. If you do those things, the painting part becomes straightforward, and the result looks better longer.

Painting a shipping container is one of those tasks where patience pays off in visible, tangible ways. A properly prepped surface gives the coating something to hold onto. The primer protects where corrosion wants to start.

The topcoat resists sun and wear. When the process is respected, the container stops looking temporary and starts looking intentional.