Global Market Analysis and Procurement Strategy: Bisphenol A Epoxy Resin (2025)

Executive Summary: The 2025 Epoxy Landscape

The fiscal year 2025 represents a pivotal moment in the global epoxy resin market, characterized by a distinct decoupling of regional pricing structures and a maturation of supply chain strategies following the volatility of the early 2020s. As the global economy stabilizes, the industrial demand for Bisphenol A (BPA) liquid epoxy resin—the fundamental binder for sectors ranging from civil infrastructure to advanced electronics—has settled into a valuation trajectory defined by feedstock nuances and geopolitical logistics. With the global market valuation approaching $14.47 billion, stakeholders are no longer merely purchasing a chemical commodity; they are navigating a complex ecosystem of petrochemical derivatives, regulatory compliance frameworks, and formulation science.[1]

For the industrial procurement officer or large-scale contractor, the 55-gallon drum remains the standard unit of trade, serving as the bridge between bulk tanker logistics and retail-level pail distribution. The procurement landscape for this unit in 2025 is defined by a weighted average price hovering between $1,200 and $1,800 per drum for standard liquid resin in the North American market, though this figure belies the immense variability introduced by purity grades, origin of manufacture, and specific contract terms.[3] This report provides an exhaustive analysis of these factors, dissecting the chemical, economic, and operational realities of sourcing BPA epoxy resin in 2025.

Fundamentals of Epoxy Chemistry and Industrial Classification

To understand the economic movements of epoxy resin, one must first possess a granular understanding of the material itself. "Epoxy resin" is a broad term, but in the context of high-volume industrial application, it almost exclusively refers to the Diglycidyl Ether of Bisphenol A (DGEBA). This prepolymer is the reaction product of two primary chemical feedstocks: Bisphenol A (BPA) and Epichlorohydrin (ECH).

The Chemical Architecture of DGEBA

The fundamental value proposition of BPA epoxy resin lies in its molecular structure. The presence of two epoxide groups (oxirane rings) at the ends of the molecule allows for a high degree of reactivity with various curing agents. The "Bisphenol A" component—comprising two phenol rings connected by a central carbon atom—imparts the rigid, thermal-resistant backbone that makes cured epoxy so durable. Meanwhile, the ether linkages provide chemical resistance, and the hydroxyl groups formed during the curing process facilitate powerful adhesion to polar substrates like concrete and steel.[5]

In the industrial lexicon, the standard liquid epoxy resin is often referred to by trade names that have become genericized, such as "828" (referencing Hexion's EPON 828) or "128" (referencing Nan Ya's NPEL-128). These resins are characterized by an Epoxide Equivalent Weight (EEW) typically ranging from 185 to 192 grams per equivalent. The EEW is a critical metric for formulators, as it dictates the precise stoichiometric ratio required for the curing agent. A resin with an EEW of 190, for instance, requires a specific mass of amine hydrogen to achieve full cross-linking; deviating from this chemistry results in unreacted material and compromised structural integrity.[7]

Viscosity and Reactivity Profiles

Standard liquid BPA epoxy resin is a viscous fluid, typically exhibiting a viscosity of 11,000 to 15,000 centipoise (cP) at 25°C. To contextualize this for the procurement specialist, this consistency is roughly comparable to warm honey or molasses. This high viscosity is a direct function of the polymer's molecular weight and intermolecular hydrogen bonding. In colder climates or unheated warehouses, this viscosity can increase exponentially, making the material difficult to pump or pour from a 55-gallon drum without drum heaters or specialized high-viscosity pumps.[9]

The resin is classified as "difunctional," meaning it has two reactive sites per molecule. This functionality is what allows it to form linear chains that are then cross-linked into a three-dimensional thermoset network. Once cured, the material transitions from a thermoplastic liquid to a thermoset solid, meaning it cannot be melted or reprocessed. This irreversible transformation is the basis for its use in permanent applications such as floor coatings, structural adhesives, and composite matrices.[5]

Regulatory and Safety Classifications

In 2025, the regulatory environment surrounding BPA-based chemicals continues to tighten, particularly in the European Union and parts of North America. BPA itself is a known endocrine disruptor, and while the reacted epoxy polymer is generally considered inert, the residual monomer content in the liquid resin is a subject of scrutiny. Industrial-grade resins typically contain trace amounts of free BPA and Epichlorohydrin. Consequently, 55-gallon drums of these materials are regulated as hazardous materials (HAZMAT) for transport, often requiring specific UN packaging certifications (e.g., UN1760 or UN3082 for environmentally hazardous substances).[10]

Upstream Feedstock Economics and Global Supply Chain Dynamics

The pricing of a 55-gallon drum of epoxy resin is inextricably linked to the upstream costs of its precursors. In 2025, the petrochemical value chain has experienced a "softening" due to overcapacity in Asia, yet this is counterbalanced by logistical friction in global shipping lanes.

The Bisphenol A (BPA) Market

Bisphenol A is synthesized from the condensation of acetone and phenol. Phenol, in turn, is derived from benzene, a primary aromatic petrochemical produced in naphtha crackers. Therefore, the price of epoxy resin has a distinct correlation with the price of crude oil, albeit with a lag time of several months.

In late 2025, the North American BPA market saw a significant price correction. The Bisphenol A Price Index fell by approximately 10.1% quarter-over-quarter. This decline was driven largely by weak demand in the polycarbonate sector—the other major consumer of BPA—which left ample supply available for epoxy manufacturers. The average spot price for BPA in the US Gulf Coast region hovered around $1,221 per metric ton (CFR Texas). In contrast, the Northeast Asian market, dealing with its own oversupply issues, saw prices around $1,788 per metric ton on an FOB basis, reflecting a disconnect driven by regional energy costs and currency fluctuations.[13]

The Epichlorohydrin (ECH) Factor

While BPA provides the backbone, Epichlorohydrin provides the reactive tips of the epoxy molecule. ECH is traditionally produced from propylene and chlorine, but increasingly, "bio-based" ECH produced from glycerin (a biodiesel byproduct) is entering the market. This dual sourcing stream helps stabilize prices, but ECH remains a volatile component due to the energy-intensive nature of chlor-alkali production. In 2025, stable ECH production in China has acted as a depressant on global resin prices, preventing the spikes seen in previous years.[1]

Logistics: The Hidden Cost of the Drum

The journey of resin from a reactor in Texas or Jiangsu to a contractor's warehouse involves a complex logistical web. In 2025, shipping disruptions in the Panama and Suez Canals have continued to exert upward pressure on "landed" costs. While the raw material might be cheaper in Asia ($1.96/kg in Northeast Asia versus $3.45/kg in North America), the cost of shipping a container of drums has remained elevated. This "freight premium" effectively protects North American and European producers from being completely undercut by Asian imports, maintaining a tiered pricing structure globally.[1]

Furthermore, the physical steel drum itself is a cost component. The price of cold-rolled steel impacts the cost of the 55-gallon drum packaging. In 2025, a standard new steel drum adds approximately $40 to $60 to the base cost of the chemical, depending on whether it is lined (epoxy-phenolic lining to prevent rust contamination) or unlined.

2025 Global Pricing Analysis: Regional Disparities and Trends

The divergence in global pricing for epoxy resin in 2025 is stark, creating opportunities for arbitrage but also imposing risks related to quality and supply continuity.

Regional Price Indices Breakdown

Data from December 2025 highlights Northeast Asia as the undisputed low-cost leader, with resin prices averaging $1.96 per kilogram. This aggressive pricing is a function of massive capacity expansions in China over the preceding five years, which have outpaced domestic demand.

Region	Price (USD/kg)	Price (USD/lb)	Approx. Cost per 500lb Drum
Northeast Asia	$1.96	$0.89	$445
Middle East	$2.29	$1.04	$520
India	$2.42	$1.10	$550
North America	$3.45	$1.57	$785
Europe	$4.54	$2.06	$1,030

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Note: The "Cost per Drum" calculated above represents the raw material cost at the port of origin or production gate. It does not include packaging, distribution markup, tariffs, or last-mile delivery, which typically double the final price to the end-user.

North American Market Dynamics

In the United States, the wholesale price for bulk liquid epoxy resin has settled into a range of $1.50 to $1.80 per pound for large contract buyers ($3.30 - $3.96/kg). However, for the small-to-mid-sized contractor purchasing single 55-gallon drums, distribution markups play a significant role.

The "street price" for a single 55-gallon drum of generic Bisphenol A epoxy resin (comparable to EPON 828) in the US market for 2025 typically ranges from **$1,400 to $1,800**. This reflects the cost of the resin, the drum, warehousing, and hazardous material shipping fees. Volume discounts are significant; purchasing a pallet of four drums can often reduce the per-drum price by 15-20%.[4]

Specialty distributors and "private label" manufacturers offer these drums as part of broader systems. For example, a 165-gallon kit (comprising two drums of resin and one drum of hardener) might retail for approximately $12,900, which breaks down to roughly $4,300 per drum set, or roughly $43 per gallon for the system. This pricing model bundles the value of the hardener, which is typically more expensive than the resin.[3]

European Market Challenges

Europe remains the most expensive market for epoxy resin in 2025, with prices exceeding $4.50 per kilogram ($2.05/lb). This premium is driven by high energy costs, stringent REACH regulations which limit the use of certain additives and modifiers, and active anti-dumping investigations against Asian imports. For European buyers, this has created a bifurcated market where large multinationals can hedge with global contracts, while smaller local formulators face intense margin compression.[1]

Procurement Logistics: The Economics of the 55-Gallon Drum

Transitioning from purchasing 5-gallon pails to 55-gallon drums represents a significant maturity milestone for a contracting business. It signals a move from "retail" procurement to "wholesale" or "distributor" level purchasing, unlocking economies of scale but introducing new operational complexities.

The Mathematics of Bulk Savings

The standard 5-gallon pail kit of epoxy typically retails for between $45 and $60 per gallon in 2025.[18] In contrast, purchasing by the drum can lower the effective unit cost to approximately $25 to $35 per gallon.

- **Retail Pail Cost:** $250 - $300 per 5 gallons ($50-$60/gal).
- **Drum Cost:** $1,500 - $1,900 per 55 gallons ($27-$34/gal).

This represents a potential savings of nearly 40-50% on raw material costs. For a contractor installing 50,000 square feet of flooring annually, this shift alone can add tens of thousands of dollars to the bottom line.[19]

Handling and Storage Requirements

However, the 55-gallon drum introduces logistical hurdles. A full drum of epoxy resin weighs approximately 500 to 520 pounds (227-236 kg). Moving these units requires a forklift or a specialized drum dolly. Furthermore, "decanting" or dispensing resin from a drum requires investment in high-viscosity pumps. Standard rotary hand pumps often fail with high-viscosity epoxy (11,000 cP), necessitating the use of lever-action pumps or pneumatic 3:1 ratio piston pumps.[15]

Storage temperature is another critical variable. BPA epoxy resin can crystallize if stored at temperatures below 60°F (15°C) for extended periods. Crystallization turns the clear liquid into a cloudy, solid mass. While reversible by heating the drum to 120°F (50°C), this process consumes time and energy. Therefore, procuring drums requires a climate-controlled warehouse or the use of drum heater bands.[9]

Formulation Science: Stoichiometry and Additive Integration

Buying resin in drums implies that the user is stepping into the role of a formulator. Unlike pre-measured kits, bulk resin requires the user to calculate mix ratios and potentially integrate additives to tailor the product to specific job site conditions.

Stoichiometry: The EEW Calculation

The most critical concept in bulk epoxy usage is Stoichiometry. The mix ratio is not an arbitrary "2:1" or "4:1" by volume; it is a chemical necessity governed by the Epoxide Equivalent Weight (EEW) of the resin and the Amine Hydrogen Equivalent Weight (AHEW) of the hardener.

The formula for calculating Parts per Hundred Resin (PHR) is:

$$\text{PHR} = \frac{\text{AHEW} \times 100}{\text{EEW}}$$

For a standard BPA resin (EEW ~190) and a standard Polyamide hardener like EPIKURE 3115 (AHEW ~156):

$$\text{PHR} = \frac{156 \times 100}{190} \approx 82.1$$

This means for every 100 pounds of resin, the user must add 82.1 pounds of hardener. Converting this to a volume ratio requires knowing the density of both liquids. Since BPA resin (density ~9.7 lbs/gal) is heavier than polyamide hardener (density ~8.1 lbs/gal), the volume ratio will differ from the weight ratio. Failing to calculate this precisely results in "soft spots" or uncured floors.[21]

Additive Integration: Modifying Rheology and Performance

Bulk resin users often modify the "neat" resin to improve handling or performance.

- **Defoamers:** Products like BYK-A 530 or BYK-022 are added at 0.1% to 0.5% by weight to help release air bubbles entrained during mixing. This is crucial for high-build, self-leveling floors.[24]
- **UV Stabilizers:** To prevent the notorious yellowing of BPA epoxy, Hindered Amine Light Stabilizers (HALS) such as Tinuvin 292 are added at 1-3% loading. While they delay yellowing, they do not render BPA epoxy completely UV stable; for that, a topcoat is required.[26]
- **Thixotropes:** Fumed silica (Cab-O-Sil) is added to increase viscosity and prevent sagging on vertical surfaces like cove bases.[7]

Advanced Curing Technologies and Hardener Selection

The versatility of the 55-gallon drum of resin lies in the fact that it can be paired with dozens of different hardeners to create vastly different end products.

Polyamides: The Workhorse of Industry

Polyamide hardeners (e.g., Versamid 115, Unimide 115) are favored for industrial maintenance coatings. They offer a long pot life, excellent water resistance, and "forgiving" mix ratios. They are ideal for primers and base coats where slight mixing errors won't result in catastrophic failure. In 2025, bulk pricing for polyamide hardeners is approximately $3.00 - $4.00 per pound ($6.60-$8.80/kg), making them a cost-effective partner for BPA resin.[29]

Cycloaliphatic Amines: High Performance and Aesthetics

For top-tier decorative floors (e.g., metallic epoxy), Cycloaliphatic Amine hardeners (e.g., Ancamine 1618) are the standard. They cure to a hard, glossy, water-clear finish and are resistant to "blushing" (the formation of a waxy surface film in humid conditions). These hardeners are more expensive, ranging from $4.00 to $6.00 per pound, and have a faster reactivity, requiring more skilled labor to apply.[32]

Polyaspartic Technology: The Topcoat Revolution

While not an epoxy hardener *per se*, Polyaspartic esters are increasingly used in conjunction with epoxy systems. A contractor might use a bulk epoxy base coat (for cost efficiency) followed by a Polyaspartic topcoat (for UV stability and speed). Polyaspartic resins, such as Desmophen NH 1420 equivalents, offer return-to-service times of under 4 hours, compared to 24 hours for epoxy. However, they are significantly more expensive, costing upwards of $7.00 - $10.00 per pound in bulk.[35]

Industrial Application Protocols and Safety Standards

The operational side of using bulk epoxy involves strict adherence to protocol to ensure safety and quality.

The Mixing Station

For large projects, a "bucket brigade" or mixing station is established. This area is typically lined with plastic sheeting to contain spills. A systematic workflow is established:

1. **Decanting:** Resin and hardener are pumped from drums into pre-measured batch containers.
2. **Pre-Mixing:** Pigments and additives are often mixed into the Part A (Resin) side first to ensure dispersion.[38]
3. **Activation:** Part A and Part B are combined and mixed for exactly 3 minutes using a low-speed drill (300-600 RPM) with a Jiffy mixer blade. High speeds are avoided to prevent air entrapment.[40]
4. **Transfer:** The mixed material is *always* poured into a clean bucket and mixed again (boxing) or poured immediately onto the floor. Leaving mixed epoxy in a bucket can lead to a "flash cure" exotherm, where the mass generates enough heat to melt the bucket and release toxic fumes.[12]

Safety Considerations

BPA Epoxy is a sensitizer. Repeated skin contact can lead to severe allergic dermatitis. Nitrile gloves and long sleeves are mandatory. The hardeners are often corrosive (alkaline amines) and can cause chemical burns. Furthermore, when curing, the reaction is exothermic. A 55-gallon drum of mixed epoxy would generate enough heat to catch fire; thus, epoxy is never mixed in bulk quantities larger than a few gallons at a time.[41]

Future Outlook: Sustainability and Technological Evolution

Looking beyond 2025, the market is shifting toward sustainable alternatives. "Green" epoxies, which replace a portion of the petroleum-based BPA or ECH with bio-based equivalents (derived from soy, corn, or glycerin), are gaining traction. While currently commanding a price premium of 20-30%, regulatory pressures and carbon footprint mandates are expected to drive these into the mainstream.[44]

Additionally, the volatility of the global supply chain has encouraged a "reshoring" of chemical blending. We are seeing an increase in regional "toll blenders" who buy bulk commodity resin and create custom formulations for local markets, reducing the reliance on finished goods imported from overseas.[45]

Conclusions

The procurement of Bisphenol A epoxy resin in 55-gallon drums for the 2025 fiscal year is a strategic exercise in balancing raw material economics with operational capability. With North American drum prices settling between **$1,400 and $1,800**, the financial incentive to move away from retail kits is compelling for any entity processing more than 100 gallons annually.

However, this transition requires a commensurate investment in technical knowledge—specifically in stoichiometry and rheology—and in physical infrastructure for handling and mixing. The divergent pricing between Asian and Western markets offers arbitrage opportunities, but these are tempered by logistical risks and tariff uncertainties. Ultimately, the successful bulk epoxy user in 2025 is one who views the 55-gallon drum not just as a package, but as a gateway to customized, high-margin industrial formulation.

Detailed Reference Data

Material	Application	2025 Price Estimate (Bulk)	Key Feedstock Driver
BPA Epoxy Resin (128/828)	Base Binder	$1.50 - $1.80 / lb	Bisphenol A / Propylene
Polyamide Hardener (115)	Primer/Base Curing	$3.00 - $4.00 / lb	Dimer Fatty Acids
Cycloaliphatic Amine	Topcoat Curing	$4.00 - $6.00 / lb	IPDA / Specialty Amines
Polyaspartic Resin	UV Stable Topcoat	$7.00 - $10.00 / lb	Isocyanates / Amines

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Technical Appendix: Deep Dive into Resin Grades and Specifications

Differentiation of Standard Liquid Resins

While "Bisphenol A Epoxy" is the generic term, industry professionals distinguish between grades based on subtle variations in molecular weight and purity.

- **Standard Grade (EEW 185-192):** This is the high-volume commodity resin (e.g., EPON 828, DER 331, YD-128). It is undiluted and offers the highest physical strength. It is prone to crystallization.[8]
- **Diluted Grade (EEW 195-210):** To aid in handling, manufacturers often add a reactive diluent (such as C12-C14 glycidyl ether) to the BPA resin. This lowers viscosity from ~13,000 cP to ~1,000 cP, making it self-leveling and easier to mix. However, diluents typically lower the chemical and thermal resistance of the cured system. These grades are often sold as "flooring resins" rather than pure "828" equivalents.[7]
- **Bisphenol F Blends:** Often blended with BPA resin to prevent crystallization and improve chemical resistance. Bisphenol F is less viscous than BPA, creating a naturally thinner resin without the use of volatile diluents. These blends command a premium of 10-15% over standard BPA resins.[5]

The Role of Fillers in Cost Engineering

In bulk applications, the cost per gallon of the *applied* system is often lowered by the use of functional fillers.

- **Silica Flour / Quartz:** An inexpensive filler ($0.20 - $0.50 / lb) that increases compressive strength and bulk. A "slurry" floor might contain 1 part resin to 1 part silica flour, effectively halving the resin cost per square foot while increasing durability.[48]
- **Ceramic Microspheres:** High-end fillers that reduce density and improve burnish resistance. While more expensive per pound than silica, their low density means they occupy more volume, providing excellent "yield" per dollar.[50]

Procurement Strategy Checklist for 2025

1. **Volume Assessment:** Do you consistently use >55 gallons every 3 months? (Shelf life is typically 1-2 years, but crystallization is a risk).
2. **Equipment Audit:** Do you have a forklift, drum dolly, and drum heater?
3. **Hardener Pairing:** Have you identified a bulk source for the matching hardener? (Buying resin in drums and hardener in expensive retail buckets negates savings).
4. **Vendor Qualification:** Does the vendor provide a Certificate of Analysis (CoA) with every drum? (Crucial for verifying EEW and viscosity consistency).
5. **Freight Calculation:** Have you factored in the LTL (Less Than Truckload) HAZMAT shipping fees, which can add $200-$400 per shipment?

By systematically addressing these points, the transition to bulk 55-gallon drum procurement becomes a calculated strategic maneuver rather than a logistical burden, positioning the enterprise for enhanced profitability in the competitive 2025 construction and coatings market.

Regional Market Nuances: A Closer Look at Import Dynamics

The disparity between Northeast Asian and North American pricing ($1.96 vs $3.45 per kg) warrants a deeper logistical analysis for the potential importer.[1]

The Import Process for Small-to-Medium Enterprises (SMEs)

For a US-based contractor, buying directly from a Chinese manufacturer (e.g., via Alibaba or direct contact) to capture the ~$1.50/kg savings seems attractive. However, the "Landed Cost" calculation often erodes this margin for volumes less than a full container load (FCL).

- **Base Price:** ~$2.00/kg.
- **Section 301 Tariffs:** Epoxies from China have historically been subject to additional tariffs (often 25%), significantly raising the base cost.
- **Anti-Dumping Duties (ADD):** Both the US and EU have active monitoring for "dumping" of low-cost resins. Retroactive duties can be applied if a manufacturer is found to be selling below cost.[14]
- **Port Fees & Demurrage:** Congestion at ports like Long Beach or Newark can lead to delays and storage fees.
- **Quality Risk:** A rejected drum due to crystallization or off-spec EEW is difficult to return to an overseas vendor.

Consequently, most SMEs find the "sweet spot" is purchasing from a large domestic distributor (e.g., Univar, Brenntag, or specialized epoxy distributors) who imports in bulk tankers and repackages into drums domestically. This secures a price closer to $3.50-$4.00/kg ($1.60-$1.80/lb) but eliminates the import risk and provides domestic recourse for quality issues.

The "Grey Market" and Surplus Resins

A sub-sector of the market involves "surplus" or "wide-spec" resins. These are batches that narrowly missed the strict specification (e.g., viscosity was 15,500 cP instead of 15,000 cP). These are often sold in drums at a deep discount, sometimes under $1.00/lb. For non-critical applications like garage basements or primers, these offer massive savings, but they require the user to test every batch. In 2025, as production ramps up, the availability of these "off-spec" drums is expected to increase.[14]

Detailed Formulation Guide: From Drum to Floor

Case Study: High-Build Gray Industrial Floor (10,000 sq ft)

Objective: Formulate a 20-mil gray epoxy floor using bulk BPA resin and Polyamide hardener.

Material Requirements:

- **Area:** 10,000 sq ft.
- **Thickness:** 20 mils (approx. 80 sq ft / gallon).
- **Total Volume Needed:** 125 gallons.

Procurement List:

1. **Resin (Part A):** 2 x 55-Gallon Drums of BPA Resin (EEW 190).
   - *Volume:* 110 gallons.
   - *Usage:* Will use approx. 82 gallons for the project, leaving surplus.
2. **Hardener (Part B):** 1 x 55-Gallon Drum of Polyamide 115 (AHEW 156).
   - *Mix Ratio:* ~2:1 by volume (Check density!).
   - *Usage:* Will use approx. 43 gallons.
3. **Pigment Pack:** 15 x 1-quart units of Universal Gray Epoxy Paste.
   - *Ratio:* Typically 1 quart per 5-10 gallons of mixed resin.
4. **Additives:**
   - 1 Gallon of Defoamer (BYK-A 530 type).
   - 5 Gallons of Benzyl Alcohol (optional, to reduce viscosity and accelerate cure in cold temps).

Execution Strategy:

- **Pre-Blending:** Add the gray pigment and defoamer to the *entire* drum of Part A (if dedicating the drum to gray) or pre-blend in 5-gallon batches. Pre-blending in the drum requires a heavy-duty drum mixer.
- **Batching:** Draw 10 gallons of Part A and 5 gallons of Part B (confirming ratio) into a mixing vessel.
- **Mixing:** Mix for 3 minutes.
- **Application:** Pour in ribbons and squeegee using a 1/4" notched squeegee, then back-roll.

Cost Analysis (Estimated):

- **Resin Cost:** $1,600 (approx. used portion).
- **Hardener Cost:** $900 (approx. used portion).
- **Pigment/Additives:** $300.
- **Total Material Cost:** ~$2,800.
- **Cost per Sq Ft:** $0.28.
- *Comparison:* Buying this as pre-pigmented kits at retail ($0.60 - $0.80 / sq ft) would cost $6,000 - $8,000.
- **Savings:** Over $3,000 on a single job, validating the bulk drum strategy.

This level of detailed planning is what separates the "bucket installer" from the industrial flooring contractor. The 55-gallon drum is the key to unlocking these margins.

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