Bleach & Hydrochloric Acid

Long-Term Supply Versus Growth

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Date: August 2026
Classification: Investment Research
Market-data cut-off: Regular-market close, 14 August 2026

Executive Summary

Bleach and hydrochloric acid are essential industrial chemicals, but neither should be analyzed as a stand-alone commodity. Both sit inside the chlor-alkali system, where chlorine, caustic soda, and hydrogen are co-produced. Olin describes a representative electrochemical unit as producing about 1.0 ton of chlorine, 1.1 tons of caustic soda, and 0.03 tons of hydrogen.[1] The investment question is therefore not simply whether bleach or HCl demand grows. It is whether the full system earns an attractive return after power costs, operating rates, derivative demand, and local logistics.

The central conclusion is **cautiously constructive**. Bleach and HCl demand should grow steadily rather than spectacularly through 2036, while effective merchant supply will remain volatile by region. The strongest economic advantage rests in reliability, route density, storage, product-handling expertise, and the ability to redirect chlorine to higher-value uses. It does not rest on a forecast of explosive molecular growth.

Core conclusion	Investment relevance
Supply matters locally. National nameplate capacity can be stable while merchant product is tight in a region.	Local distributors, well-sited producers, and operators with tankage and dedicated transport can earn superior returns.
ECU economics govern operating behavior. Producers optimize the combined chlorine, caustic, and hydrogen system.	PVC, caustic exports, derivative margins, and power costs can matter more than a single end market.
Quality is more investable than volume growth.	Service networks and disciplined capital allocation are preferable to a high-beta commodity bet.

> ***Safety note:*** *Sodium hypochlorite bleach and hydrochloric acid must never be mixed. The reaction can release toxic chlorine gas. This report considers commercial markets only, not combined handling or use.*

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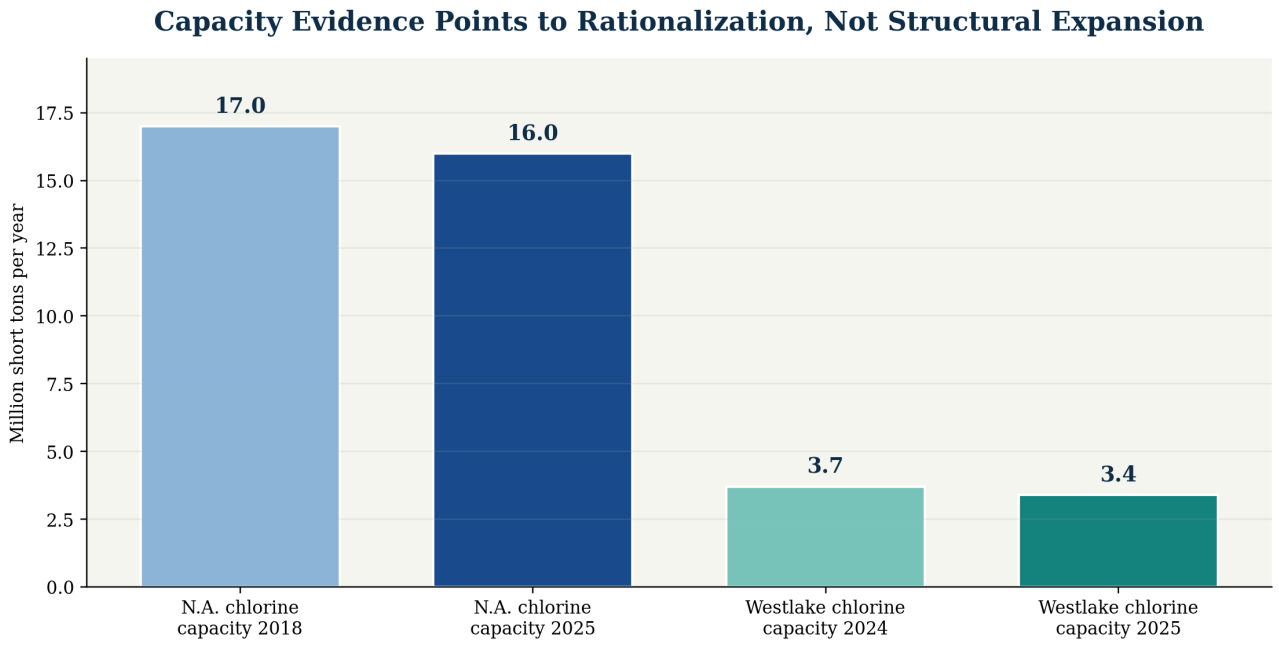
1. The Chlor-Alkali System Sets the Economics

Electrolysis of salt produces chlorine, caustic soda, and hydrogen simultaneously. Because the ratio is fixed, producers cannot increase chlorine output without creating caustic soda and hydrogen. Chlor-alkali is therefore a balancing business. An apparently positive bleach or HCl demand signal does not automatically translate into attractive producer margins.

Chlorine is difficult and expensive to transport, which encourages local conversion into bleach, HCl, PVC intermediates, isocyanates, chlorinated organics, and other derivatives. Caustic soda is more globally tradable. Merchant HCl can be made by direct burning of chlorine and hydrogen, but it also appears as a by-product of multiple derivative processes. HCl availability can therefore swing with the operating rate of host chemical plants, not solely with HCl consumption.

EPA documented an approximate 10% decline in U.S. chlorine production capacity in 2021, equal to about 1.2 million tons, following closures. The agency also described longer lead times, partial order fulfillment, and regional shortage exposure.[2] The historical point is not that shortages persist continuously. It is that weather, outages,

maintenance, logistics, and capacity losses can create regional pricing power faster than national capacity statistics imply.



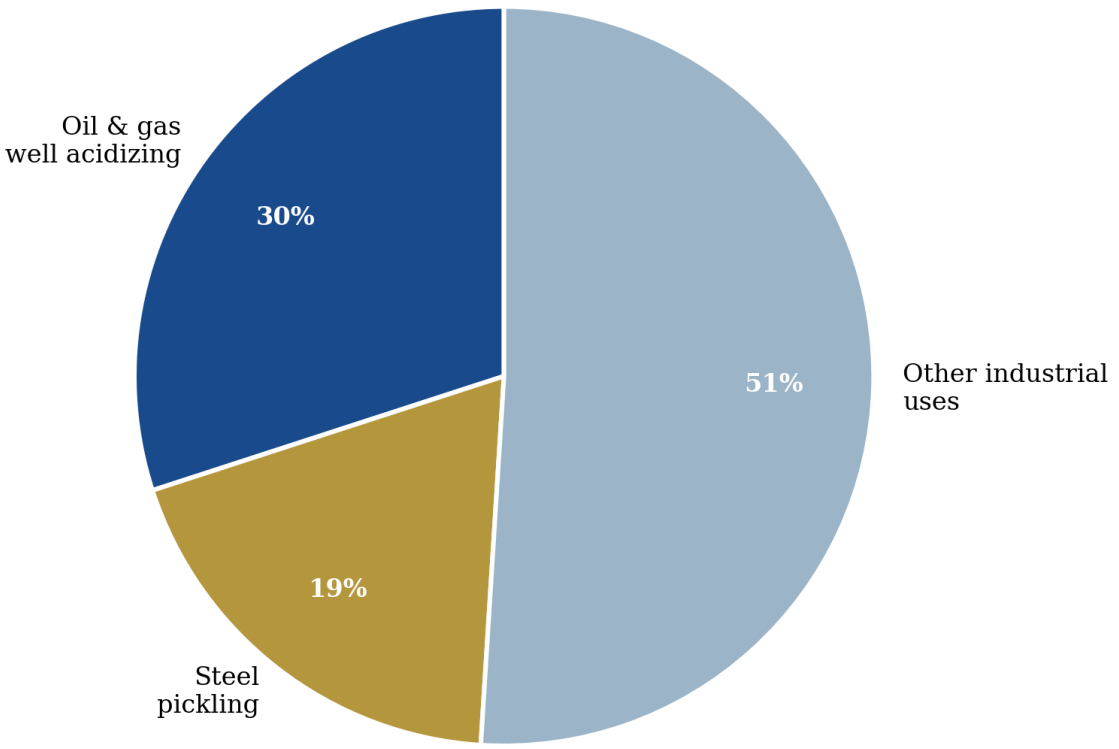
Sources: Olin 2018 and 2025 Form 10-Ks; Westlake reported capacity data. Westlake figures include global sites.

2. Demand Is Essential, but the Drivers Are Different

Bleach is used in municipal water treatment, wastewater disinfection, pools, institutional sanitation, food processing, pulp and paper, and industrial applications. Shelf life, concentration loss, required storage, and bulk delivery needs favor suppliers that can serve customers quickly and reliably. Water and wastewater treatment are critical but comprise only a modest portion of broader chlorine-product production, according to the EPA.[2]

Merchant HCl serves oil and gas well acidizing, steel pickling, metal and mineral processing, water applications, chemical synthesis, food processing, and pharmaceuticals. Its demand base is broad, but well completions and steel output can have an outsized effect on short-term consumption. HCl is therefore a modest-growth but cyclically variable market.

Merchant HCl Demand Is Exposed to Cyclical End Markets

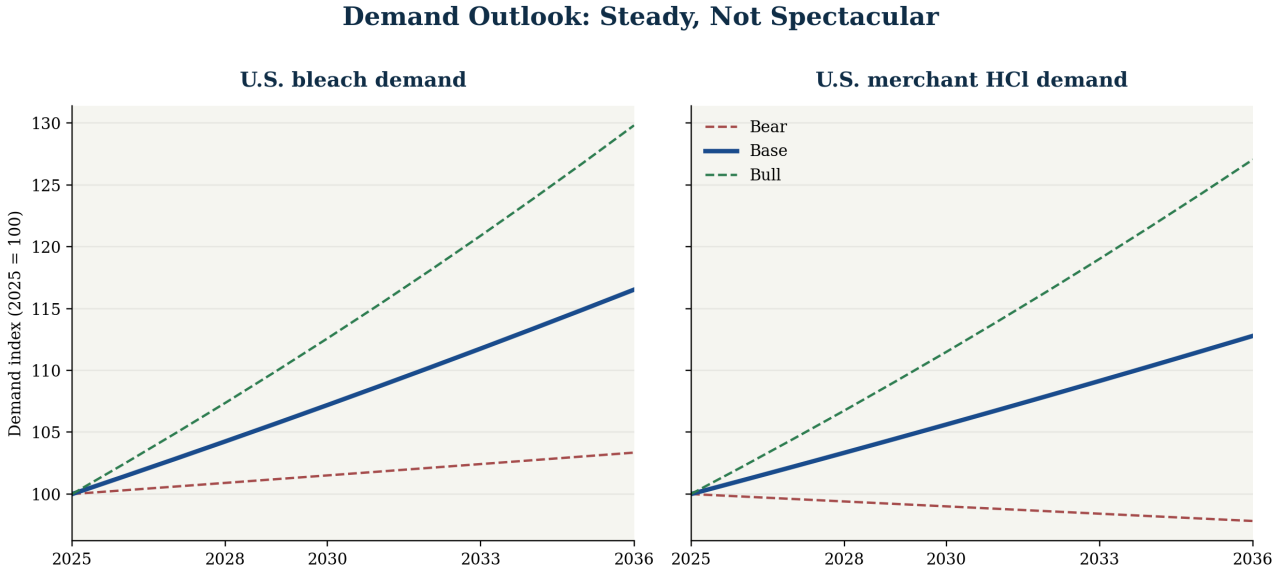


Historical U.S. demand shares used as analytical reference: oil & gas ~30%, steel pickling ~19%; remaining uses aggregated. Source: EPA Hydrochloric Acid Supply Chain Profile and report methodology.

Product	Structural support	Principal constraints
Bleach	Water treatment, sanitation, route density, short shelf life, emergency-service value	On-site generation, local conversion additions, utility bid competition, handling regulation
Merchant HCl	Industrial process demand, steel, oil and gas, chemical synthesis, local storage and delivery needs	By-product supply swings, host-plant rates, well completions, and steel cycles

3. Ten-Year Outlook: Steady Demand, Uneven Availability

The base case assumes **1.4% annual bleach demand growth** and **1.1% annual merchant HCl growth** from 2025 to 2036. These are planning assumptions, not estimates of a permanent national shortage. The bull case requires stronger derivative demand, disciplined operating rates, tighter local supply, and more frequent disruptions. The bear case combines weak PVC and industrial activity, rising on-site generation, and greater derivative or import pressure.



Scenario analysis using report assumptions. Base cases reach about 116 for bleach and 113 for merchant HCl by 2036.

Supply factor	Direction	Why it matters
Capital intensity and permitting	Constraining	A greenfield cell room must earn returns across the full ECU, not only bleach or HCl.
Electricity cost and reliability	Both risk and advantage	Electrolysis is power-intensive; modern assets with advantaged power can widen their position.
Aging diaphragm assets	Negative for reliable nameplate	Maintenance, conversion economics, and environmental requirements can reduce effective availability.
Local bleach conversion	Positive local supply	Improves resilience near users but can displace merchant volume.
HCl direct burn	Swing-positive supply	Can respond to tightness, but economics depend on chlorine and hydrogen opportunity cost.
Derivative host-plant rates	Volatile	PVC, VCM, isocyanates, fluorochemicals, and chlorinated-organics cycles can create or remove HCl supply.
Weather and logistics	Persistent risk	Gulf Coast storms, freezes, rail constraints, driver availability, and plant incidents cause regional spikes.

The most likely outcome is **periodic regional tightness managed through utilization, imports, local conversion, inventory, and price rationing**. It is not a smooth, permanent national shortage.

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4. Price and Margin Mechanics

Condition	Bleach outcome	HCl outcome	Producer or distributor implication
Chlor-alkali outage	Immediate local squeeze; allocations more likely	Direct-burn supply constrained; by-product supply may also fall	Unaffected plants and distributors with inventory gain pricing power
Weak PVC or industrial cycle	Chlorine demand softens; production may be cut	Host-process by-product supply can fall	ECU producers can suffer while HCl tightens paradoxically
Strong caustic export market	Supports operating rates and chlorine availability	More chlorine and hydrogen can be available for direct burn	Integrated producers benefit; derivative scarcity may ease
Hurricane or freeze	Production and freight disruption	Similar, with rail and cross-border offsets possible	Reliability, inventory, and working capital become more valuable
On-site bleach generation adoption	Reduces delivered bleach purchases	No direct effect	Equipment and service firms may benefit while merchant sellers lose volume

The durable sources of pricing power are not necessarily the lowest-cost molecule producers. They are the operators that can redirect chlorine, store products, protect reliability, and serve customers inside an economical radius.

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5. Public-Market Investment Map

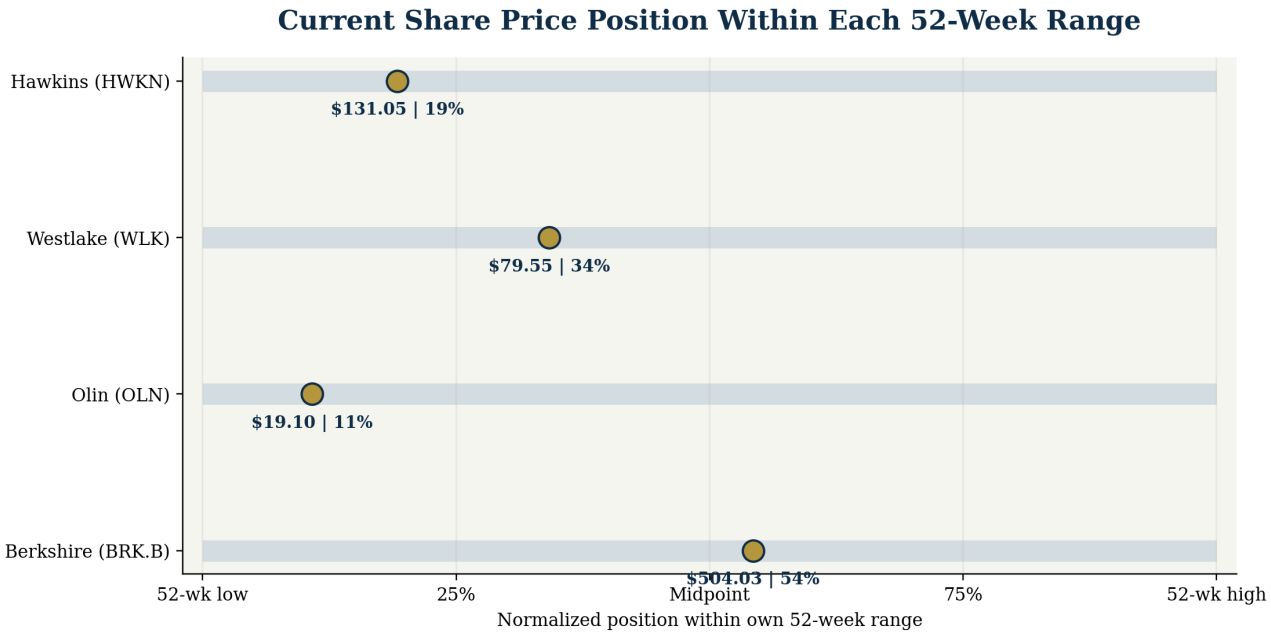
The securities below are different expressions of the theme, not interchangeable alternatives. Parent-company information is used where the relevant chemical exposure is part of a larger enterprise. A parent-level price is not a pure bleach or HCl valuation.

Company	Exposure to thesis	Principal strengths	Key risks	View
Hawkins (HWKN)	Manufactures and distributes bleach, HCl, and water-treatment chemicals	Local moat, route density, service model, tankage, acquisition runway	Valuation sensitivity, integration, input-price volatility	**Highest-quality expression; accumulate only with valuation discipline**
Westlake (WLK)	Large chlor-alkali and vinyls footprint	Integration, energy and feedstock advantages, balance-sheet liquidity	PVC, housing, exports, Middle East, and logistics exposure	**Preferred diversified cyclical value expression; stage entries**
Olin (OLN)	Direct ECU, bleach, and HCl exposure	Upside to ECU recovery and derivative flexibility	Leverage, trough earnings, merger execution, dilution, regulation	**Speculative only; require a larger margin of safety**
Berkshire (BRK.B)	Owns OxyChem after the acquisition	Long holding period, capital strength, durable basic-chemicals ownership	OxyChem is not material enough to make BRK.B a pure-play exposure	**Strong enterprise, but not a targeted bleach or HCl vehicle**

Hawkins materials cite 66 locations, around 25 million gallons of tank capacity, more than 400 trucks, and fiscal-2026 water-treatment revenue of USD 543.3 million.[3] Westlake reported approximately USD 1.9 billion of cash, cash equivalents, and fixed-income investments and USD 5.1 billion of total debt at June 30, 2026.[4] Olin reported approximately USD 2.85 billion of net debt and 5.0x net debt to adjusted EBITDA at the same date; its proposed Huntsman combination was expected to close in the first half of 2027, subject to conditions.[5]

Refreshed Market Snapshot

Ticker	Price at 14 Aug. 2026 close	52-week range	Selected context
HWKN	USD 131.05	USD 117.98 to USD 186.15	Water-treatment and industrial chemical distribution; quality route-density exposure
WLK	USD 79.55	USD 56.33 to USD 124.23	Diversified chlor-alkali and PVC exposure; parent-level liquidity supports flexibility
OLN	USD 19.10	USD 17.73 to USD 30.46	Direct ECU-cycle exposure; leverage and merger execution remain central
BRK.B	USD 504.03	USD 464.01 to USD 537.74	OxyChem ownership is relevant but immaterial to the broader conglomerate



Gold marker = regular-market price at 14 Aug. 2026 close. Percentage is normalized to each securitys own 52-week low-to-high range.
Source: Yahoo Finance market data; parent-level prices are not segment-specific valuations.

Berkshire announced completion of the OxyChem acquisition at **USD 9.7 billion before customary post-closing adjustments**.[6] Its Q2 2026 filing subsequently reported **approximately USD 9.4 billion of cash consideration including certain post-closing adjustments**, while noting that Occidental retained legacy environmental liabilities.[7]

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6. Scenarios, Decision Rules, and Disconfirming Evidence

Scenario, 2026 to 2036	Probability	Market result	Equity implication
Base: disciplined sufficiency	55%	Bleach +1.4% CAGR; HCl +1.1%; roughly flat capacity and recurring regional tightness	Hawkins compounds; Westlake earns through-cycle returns; Olin recovers unevenly
Bull: reshoring, infrastructure, and constrained supply	20%	2%+ derivative growth, strong utilization, frequent local premiums	Olin and Westlake show the most operating leverage; distributors also benefit but valuation matters
Bear: overcapacity, substitution, and recession	25%	Weak PVC and industrial output, lower bleach demand, Asian derivative pressure	Hawkins is relatively defensive; Westlake and Olin risk impairments and weak ECU margins

The thesis would weaken if net U.S. chlor-alkali capacity grows above roughly 1.5% annually for several years without matching demand; if merchant bleach customers adopt on-site generation quickly enough to reduce delivered volume materially; if HCl host-plant output rises while oil, steel, and chemical demand stalls; or if Hawkins organic growth turns negative while acquisitions obscure returns on invested capital.

7. Monitoring Dashboard

Indicator	Frequency	Bullish signal	Warning signal
North American chlor-alkali closures and additions	Event-driven	Closures exceed debottlenecks while demand is stable	Multiple greenfield announcements
Operating rates and force majeure notices	Monthly or quarterly	Tight but reliable supply and improving realization	Repeated outages causing customer substitution
Caustic soda export prices and volumes	Monthly	Supports ECU economics and plant rates	Global oversupply compresses ECU value
PVC, EDC, and VCM spreads	Monthly or quarterly	Recovery improves integrated utilization	Prolonged trough and closures
U.S. completions and steel output	Monthly	Stable-to-rising HCl demand	Sharp fall in completions or steel output
Utility chemical bids and emergency allocations	Bid cycle or event	Rising delivered premiums with few qualified bidders	Price competition despite inflation
On-site hypochlorite installations	Annual or project	Slow adoption and targeted backup use	Broad displacement of delivered bleach
Hawkins organic growth and acquisition returns	Quarterly	Organic growth with stable margins	Acquisition-only growth and margin erosion
Westlake segment earnings	Quarterly	Volume and margin recovery without excess capex	Improvement driven only by temporary disruption
Olin leverage and merger milestones	Quarterly or event	Leverage below 3.5x and credible synergies	Liquidity use, delayed close, or synergy slippage

Methodology, Limitations, and Disclosure

This report combines public company filings, investor materials, regulatory sources, and market data. Public chlorine, bleach, and HCl statistics are often incomplete, dated, or reported on inconsistent product and geographic bases. The forecast is therefore expressed as a scenario index rather than false precision on absolute tonnage.

Market prices are parent-company regular-market closing prices as of 14 August 2026. They are supplied for context and are not price targets, recommendations, or measures of segment-specific value. Adjusted EBITDA, net debt, and other non-GAAP measures are quoted as reported by each company and should be read with the relevant reconciliation.

This research is for informational and educational purposes only. It is not individualized investment, legal, tax, or safety advice. Securities investing involves risk, including potential loss of principal. Readers should perform their own diligence and consider professional advice appropriate to their circumstances.

References

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6. Berkshire Hathaway, *Berkshire Hathaway Completes Acquisition of OxyChem*, 2 January 2026.
7. Berkshire Hathaway, *Form 10-Q for the Quarter Ended 30 June 2026*.