

COMPANY PROFILE

CHEMISTRY FOR A CLEANER FUTURE

TRUSTED CHEMISTRY & TAILORED SOLUTIONS

At **Sendachem**, we combine deep chemical expertise with innovative solutions to help industries operate cleaner, safer, and more efficiently.

Water &
Environmental
Solutions

Industrial Lubrication
Solutions

Mining Chemicals

Trusted Chemistry for
Industrial Excellence



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1. Company Overview
2. Product Portfolio &
Solutions
3. Case Studies

COMPANY OVERVIEW

TRUSTED CHEMISTRY & TAILORED SOLUTIONS

Founded in Singapore, a global trade and innovation hub, SENDACHEM is a premier end-to-end provider of specialty chemicals... providing comprehensive chemical lifecycle management, as well as field expertise.

Driven by over 20 years of deep R&D heritage, robust manufacturing capacity, and hands-on field expertise... delivering key value with strict adherence to global environmental compliance.

Executive Leadership & Innovation

- **Advanced Technical Expertise:** Proprietary engineering processes and patents across core operational domains.
- **Global Industry Mastery:** Decades of senior engineering and executive experience at Fortune Global 500 chemical and energy leaders, including Merck and Shell.
- **Pioneering Solutions:** Solving complex industrial challenges through cutting-edge R&D and field-tested execution.

Proven Track Record & Landmark Projects

Selected representative projects from our extensive industry experience.

- **Waste Water Treatment & Operations:** Ultra-high concentration cutting fluid, standard for solar PV and semiconductor waste water management (**TCL-ZhongHuan**).
- **Advanced High-Concentration Heavy Metal Waste Water:** Ultra-high concentration of Ni & Mn flushing fluid, Continuous zero-downtime performance under rigorous OEM environmental standards (**Toyota**).
- **Full Scale Dosing Design & Operation:** Automotive paint shop recirculation water, ensures long-term operational stability of the paint spray booth by controlling bio-fouling and sludge accumulation (**Volvo**).
- **Next-Generation Lubrication Technology for Welding Robotics:** Successfully replaced traditional welding robot lubricants with high-performance, cost-effective alternatives across automated production lines (**Volvo**).

Global Blue-Chip Client Portfolio

- **Automotive & EV Pioneers:** Toyota, Volvo, VW, Geely, XPeng (XP), BYD, FAW Groups.
- **Solar Energy Leaders:** TCL, LONGi.
- **Global Speciality Chemical Giants:** Buckman, Brenntag.

PRODUCT PORTFOLIO & SOLUTIONS

HEAVY METAL REMOVER

ADVANCED HEAVY METAL CAPTURE & PRECIPITATION SYSTEM

Advanced Metal Capture Technology

- **Rapid Reaction:** Fast sulfur-based binding and precipitation.
- **Complexed Metal Treatment:** Beyond conventional hydroxide precipitation.
- **Lower Sludge Burden:** Less hydrated precipitate and improved sludge handling.
- **Stable Metal Immobilization:** Strong metal binding helps minimize re-release from captured solids.

	Hydroxide Precipitation / Inorganic Sulfide	SENDACHEM CHR
Metal Capture	pH-dependent / strong	strong & selective
Complexed Metals	limited / variable	more effective
pH Sensitivity	high / moderate high	more flexible
Precipitation	Metal hydroxides / metal sulfides	stable metal complexes
Sludge Volume	very high / low	lower / more concentrated
Sludge Stability	moderate / good	excellent
Final Metal Level	ppm	ppb
Total Treatment Cost	high / moderate high	low total treatment cost



Three Recommended Solutions

- **CHR-1500:** For general-purpose wastewater treatment and standard heavy-metal removal.
- **CHR-3000:** For high-volume wastewater streams where reliable metal capture and treatment economics are critical.
- **CHR-5500:** For challenging wastewater containing strongly complexed metals and ultra-strict discharge requirements.

Key Industrial Applications

- **Electroplating & Surface Treatment:** Cu, Ni, Zn, Cr, Pb, Cd and mixed-metal wastewater.
- **Semiconductor & Electronics:** Complexed copper, nickel and other difficult-to-remove metals.
- **Mining & Mineral Processing:** Heavy-metal-bearing process water and tailings wastewater.
- **Battery & Energy Materials:** Ni, Co, Cu, Mn and mixed-metal wastewater.
- **Metal Finishing & Manufacturing:** Process wastewater, rinse water and metal-bearing effluent.
- **Wastewater Reuse & Advanced Treatment:** Polishing treatment for low residual-metal requirements.

PRODUCT PORTFOLIO & SOLUTIONS

CORROSION & SCALE

INHIBITOR

RELIABLE PROTECTION FOR INDUSTRIAL WATER SYSTEMS

MULTI-MECHANISM PROTECTION Comprehensive control of corrosion, scale & deposits	HIGH-TEMPERATURE STABILITY Reliable performance under demanding conditions	PHOSPHORUS-FREE OPTIONS Effective protection with a lower environmental footprint	CUSTOMIZED SYSTEM PROTECTION Engineered for complex water chemistry & mixed-metal systems
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Advanced Formulations for Consistent & Reliable Performance

SENDACHEM's corrosion & scale inhibitor solutions are designed to protect your equipment, prevent deposit formation and ensure stable operation in challenging industrial water environments.

Application - Specific Product Portfolio

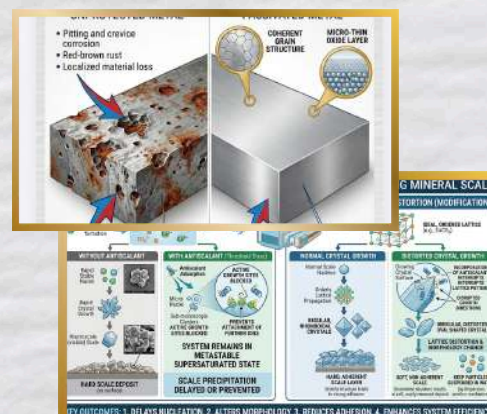
- Phosphorus-Free
- Boiler
- Copper Surface
- High Corrosion and Low Hardness
- High Hardness
- Membrane System
- Oil Field
- Power Plant
- Steel Mill

Engineered for Demanding Operating Conditions

Thermal Stability	Typical Threshold Inhibition Range	Scale Inhibition Efficiency	Silica Management Capability
UP TO 300°C	1-10 ppm	> 98%	150-180 ppm

Key Industrial Applications

- Power Generation:** Boilers, cooling systems, steam systems
- Chemical & Petrochemical:** Process water, cooling water, refinery systems
- Metallurgy & Mining:** Process water, tailings, mineral processing
- Manufacturing:** Cooling systems, process water, equipment
- Water Treatment:** RO systems, wastewater treatment, reuse water



PRODUCT PORTFOLIO & SOLUTIONS

DEFOAMERS / FOAM CONTROL

EFFECTIVE FORM CONTROL FOR CLEANER, SAFER, MORE STABLE OPERATIONS

FAST FOAM KNOCKDOWN

Rapid eliminates existing foam and prevents re-formation

LONG LASTING CONTROL

Provides sustained foam suppression suppression for extended operation time

WIDE pH & TEMPERATURE RANGE

Effective in diverse water chemistries and harsh conditions

SYSTEM-COMPATIBLE FORMULATIONS

Non-corrosive, low residue, compatible with multiple industrial system

Advanced Formulations for Consistent & Efficient Foam Control

SENDACHEM's industrial defoamers and antifoams are engineered to rapidly destabilize foam, maintain stable foam control, and improve process efficiency at cost-effective dosages across demanding industrial environments.

Application - Specific Product Portfolio

- Fast Acting
- Long Lasting
- Fast & Durable
- High Temperature Resistant
- Acid & Alkali Resistant
- Water Based
- Oil Based
- Food Grade

Technical Selection Parameters

The right defoamer for your system. Based on your process conditions, we help you choose the optimal solution for maximum efficiency and compatibility.

System Medium	Operating Conditions	Application Method	Regulatory & Environmental Requirements
• Water-based • Oil-based • Process fluids • Wastewater	• pH range • Temperature • Foam characteristics • Contaminants	• Continuous dosing • Batch dosing • Direct addition • Metering system	• Food grade / non-toxic • Low VOC • Biodegradability • local compliance

Key Industrial Applications

- **Wastewater Treatment:** Controls foam in biological and chemical treatment systems.
- **Chemical Processing:** Prevents foam in reactors, storage tanks and transfer systems.
- **Metalworking:** Improves process stability and reduce downtime.
- **High-Speed Manufacturing:** Maintains stability and production efficiency.
- **Hot Forming / Forging:** Prevents foam in high temperature and high pressure processes.



PRODUCT PORTFOLIO & SOLUTIONS

PAINT COAGULATION

WET SPRAY SOLUTION

INSPIRED BY CATIONIC TECHNOLOGY

Experience the Ultimate Spray Booth Efficiency

- Delivers **3-5** times higher efficiency than other solutions.
- High-dry sludge solids, reduces **40-50%** waste quantity and disposal costs.
- Long life time for over **12** months of spray booth re-circulation water.

Technical Selection Parameters

Leveraging our proprietary Ionic Polymer Flotation Technology, the detackified paint particles aggregate and float to the surface within seconds for easy skimming and removal. This technology has been successfully field-proven for years in the automotive industry.

- **Dual Compatibility:** Detackifies both solvent-based (oil-based) and water-based paints efficiently.
- **Rapid Turbidity Reduction:** Quickly reduces water turbidity and suspended solids (SS), enhancing the overall coagulation process.
- **Foam Elimination:** Eliminates foam issues entirely within the spray booth re-circulation system.

Selection is optimized based on paint chemistry, water quality, pH, operating temperature, and booth conditions, ensuring effective paint mist capture, detackification, and efficient sludge removal.

**NO FOAM
ISSUE**

**GREEN PRODUCTS -
NO FORMALDEHYDE**



Key Industrial Applications

- **Automotive:** Paint booths & automotive components.
- **Industrial Coating:** Machinery, equipment & metal parts.
- **Furniture & Wood:** Furniture, cabinets & wood panels.
- **Electronics & Appliances:** Housings & precision components.
- **Plastic & Composite:** Plastic parts & composite products.

PRODUCT PORTFOLIO & SOLUTIONS

FILTER BOX

DRY SPRAY SOLUTION

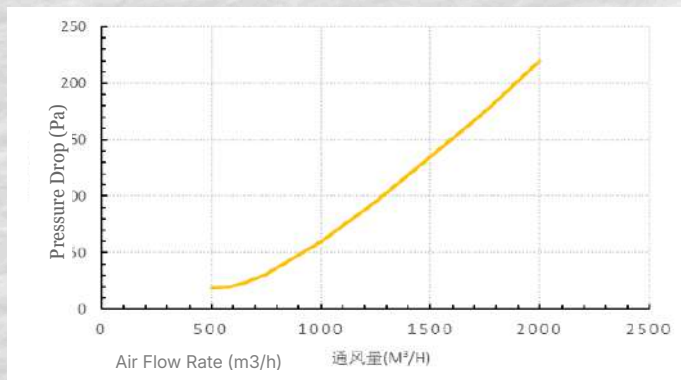
ENGINEERED BY VENTURI-BASED TECHNOLOGY

Heavy-Duty with Optimized Paint Capture Capacity

- High separation efficiency of **98%** ensured by a coarse-grade final filter layer.
- Large honeycomb openings on the air inlet side prevent clogging and provide excellent paint holding capacity (**15kg**).
- Low initial pressure drop achieved through loose honeycomb media and G4 filter mat design.

Technical Selection Parameters

Selection is optimized based on paint chemistry, water quality, pH, operating temperature, and booth conditions, ensuring effective paint mist capture, detackification, and efficient sludge removal.



Our Clients



Technical Consultation

Our experts provide customized solutions for your spray booth, helping you improve efficiency and reduce downtime.



After-Sales Support

Comprehensive service and monitoring to make sure your system maintains long-term stability and compliance.

PRODUCT PORTFOLIO & SOLUTIONS

INDUSTRIAL LUBRICATION

RELIABLE LUBRICATION FOR HIGH-PERFORMANCE INDUSTRIAL EQUIPMENT

REDUCED FRICTION & WEAR Protective lubrication film helps minimize friction, surface wear, and premature component damage.	HIGH LOAD & TEMPERATURE RESISTANCE For demanding operating conditions including high loads, high speeds, temperature extremes, and continuous operation.	EXTENDED EQUIPMENT LIFE Effective lubrication helps protect critical components and extend service intervals and equipment service life.	STABLE & RELIABLE OPERATION Suitable lubricant selection supports smooth operation, reduced maintenance requirements, and more reliable production.
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Engineered Lubrication for Consistent Equipment Performance

SENDACHEM supplies industrial lubricants selected for demanding equipment and operating conditions across Southeast Asia. Our lubrication solutions help reduce friction and wear, protect critical components, improve equipment reliability, and support efficient, stable industrial operations.

Application - Specific Product Portfolio

- Robot Precision Grease
- High-Performance Bearing Lubricant
- Electric Power Tool Grease
- Heavy-Duty Open Gear Grease
- Automotive Component Grease
- Refrigeration Compressor Lubricant
- Wind Turbine Gear Oil

Technical Selection Parameters

Lubricant selection is based on equipment type, viscosity grade, load, speed, temperature, lubrication method, and operating environment to ensure reliable performance and compatibility.

Equipment / Application	Operating Conditions	Lubricant Type	Performance Requirements
Gears & Gearboxes	• High load • High speed	• Gear Oil • Open Gear Grease	• EP protection • Wear resistance
Bearings & Rotating Equipment	• High speed • Wide temperature	• Bearing Grease	• Low friction • Thermal stability
Hydraulic Systems	• Pressure • Continuous operation	• Hydraulic Oil	• Wear protection • Oxidation stability
Compressors	• High / low temperature • Continuous duty	• Compressor Oil	• Thermal stability • Low deposits
Chains & Moving Components	• Continuous movement • Dust / outdoor conditions	• Chain Lubricant / Grease	• Adhesion • Wear protection

PRODUCT PORTFOLIO & SOLUTIONS

INDUSTRIAL LUBRICATION

RELIABLE LUBRICATION FOR HIGH-PERFORMANCE INDUSTRIAL EQUIPMENT

Key Industrial Applications

- **Precision Automation:** Lubrication for robotic joints, precision gearboxes, servo systems, and high-precision moving components.
- **Manufacturing Machinery:** Supports reliable operation of bearings, gears, motors, chains, and other continuously moving components.
- **Heavy-Duty Equipment:** Provides wear and load protection for open gears, rotary kilns, ball mills, dryers, and other demanding machinery.
- **Power & Energy:** High-performance lubrication solutions for wind turbine gearboxes and other critical power-generation equipment.
- **Refrigeration & HVAC:** Specialized compressor lubricants designed for refrigeration and air-conditioning systems operating under low-temperature and high-pressure conditions.

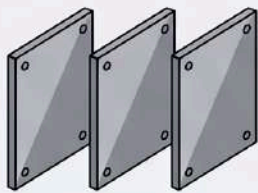


CASE STUDIES

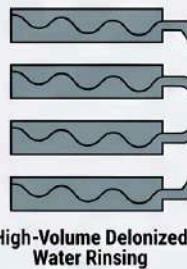
Heavy Metal Treatment for High-Loading Batch Wastewater

CASE STUDY: High-Loading Batch Wastewater Treatment in Automotive Manufacturing

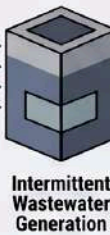
1 BACKGROUND & BATCH PEAK CONCENTRATIONS



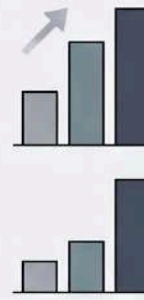
Tri-Cation Passivation Rinsing



High-Volume Deionized Water Rinsing



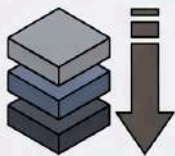
Intermittent Wastewater Generation



Nickel (Ni) Peak Concentration
800–1,000 mg/L Ni
High-loading batches reach extreme concentrations that challenge the stability of conventional precipitation systems.

Manganese (Mn) Peak Concentration
~200 mg/L Mn
These peak levels are generated intermittently during the specific rinsing phases of the automotive manufacturing cycle.

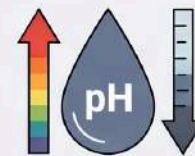
2 THE TREATMENT CHALLENGE



01. Excessive Sludge Generation
High Handling and Disposal Costs
Conventional methods produce large quantities of high-moisture sludge, driving up dewatering and transportation expenses.



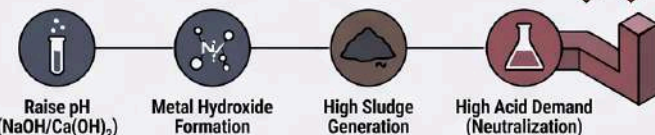
02. Complexed Heavy Metals
Risking Effluent Quality
Heavy metals often remain in stable, complexed forms that are difficult for traditional chemicals to track and remove.



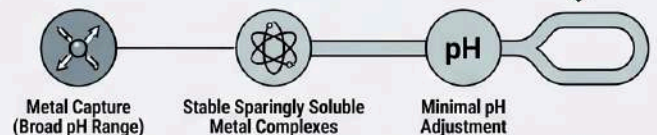
03. High Acid Consumption
Massive pH Fluctuations
Traditional precipitation requires massive pH increases followed by large amounts of acid for downstream neutralization.

3 THE SENDACHEM CHR-5500 SOLUTION

Conventional Alkaline Precipitation Workflow
Inefficient and Multi-Step



SENDACHEM CHR-5500 Metal Capture Workflow
Streamlined and Efficient



Key Advantages of CHR-5500

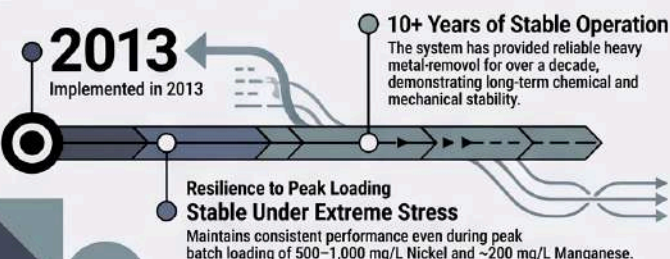


Performance and Savings

Offers effective capture of complexed metals, significantly reduced sludge volume, and minimal impact on wastewater pH.



4 PROVEN PERFORMANCE



5 APPLICATION VALUE

Reliable Treatment. Lower Cost.

This project demonstrates that metal-capture technology effectively addresses combined challenges of metal loading, batch variation, and neutralization demand.

“A Cleaner Future: A Fundamentally Different Approach.
Moving beyond simple optimization to a stable, cost-effective treatment process for sustainable automotive manufacturing.”

CASE STUDIES

High-Efficiency Corrosion & Scale Control in Steel Mill Cooling Systems

Case Study: High-Efficiency Corrosion & Scale Control in Steel Mill Cooling Systems

Demonstrating SENDACHEM CHR-8800 performance under extreme thermal and chemical stress.



Steel mill cooling systems face extreme operational stress, including high thermal flux and poor makeup water quality. This case study highlights how **SENDACHEM CHR-8800** outperforms conventional treatments to ensure stable, long-term operation.



1. Background & System Stress

- **Extreme Environmental Load:** System operates under high thermal flux and extreme TDS/TOC concentrations.
- **Elevated Cycles of Concentration:** High COC operation increases the for. extreme TDS/TOC concentrations.
- **Elevated Cycles of Concentration:** High COC operation increases the potential for rapid scale formation and corrosion.

2. The Treatment Challenge



01. Severe Scaling & Heat Transfer Loss: Mineral deposits insulate surfaces, causing significant drop in cooling efficiency.



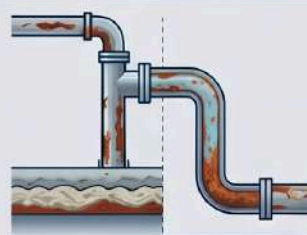
02. Rapid Under-Deposit Pitting Corrosion: Trapped moisture under scale leads to localized, deep metal perforation.



03. Zinc Precipitation & Sludge Fouling: Conventional chemistries often fall out of solution, creating thick, fouling sludge.

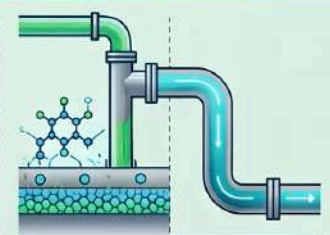
3. The SENDACHEM CHR-8800 Solution

Conventional
Zn/PO₄ Treatment



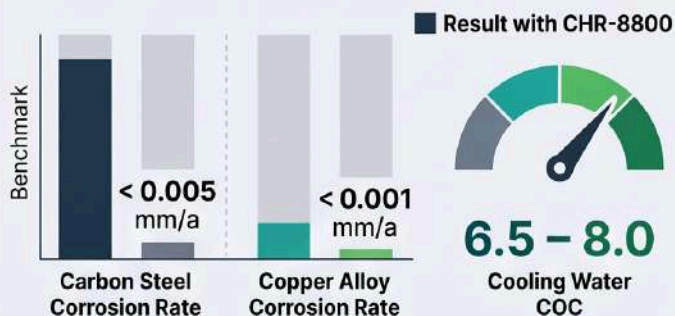
Inefficient under high stress; prone to precipitation and limited corrosion protection.

SENDACHEM
CHR-8800 Solution



Advanced formulation designed for extreme stability and superior passivation in harsh conditions.

4. Proven Performance



5. Application Value



Zero Unscheduled Shutdowns:

Consistent water chemistry eliminates downtime caused by heat exchanger failure.



Lower Operational Cost:

Reduced chemical consumption and maintenance labor drive significant annual savings.



Extended Furnace Jacket Life:

Superior corrosion inhibition preserves high-value production for longer durations.

CASE STUDIES

Rapid Defoaming & Long-Lasting Foam Suppression in Textile ETP Systems

Case Study: Rapid Defoaming & Long-Lasting Foam Suppression in Textile ETP Systems

Textile effluent with high surfactant loads often causes extreme foam overflow (>1.5m) in aeration basins and MBR systems. This study highlights how switching from high-dosage traditional defoamers to **SENDACHEM CHR-3300** reduced chemical consumption by up to **90%** while ensuring zero membrane fouling.

1 Background & The Foam Crisis



Critical Levels

High-surfactant textile effluent creates massive foam levels in aeration basins and MBRs.

500–800 ppm

High-Dosage Inefficiency:
Traditional mineral oil and silicone defoamers require excessive dosages.

2. The Treatment Challenge



01. Poor Persistence & High Consumption

Legacy chemicals fail to provide long-lasting suppression, leading to constant re-dosing.

02. Membrane Fouling & Oil Residue

Mineral oil residues compromise MBR efficiency and require frequent, costly cleaning.

03. Sludge Loss & Environmental Risks

Foam-induced sludge carryover destabilizes the biological system and threatens effluent compliance.

3. The SENDACHEM CHR-3300 Solution

Conventional Mineral Oil/Silicone Workflow

Standard Emulsion



Short-lived; requires high ppm



Oil residue & membrane fouling



SENDACHEM CHR-3300 Workflow



Polyether-Modified Siloxane

High persistence; low dosage



Zero fouling; water-safe



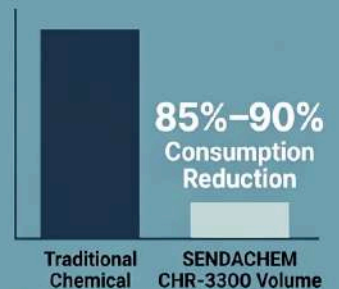
4 Proven Performance



< 5 Seconds

Foam Elimination

Provides near-instant knockdown of even the most stable surfactant-generated foam.



Massive reduction in chemical volume compared to traditional mineral oil treatments.



5 Application Value



Instant Knockdown & Zero Fouling

Combines rapid action with complete membrane safety for sensitive MBR systems.



85%+ Chemical Cost Savings

Dramatic dosage reduction translates directly into significant operational expenditure savings.

CASE STUDIES

Paint Detackification & Floating Sludge Coagulation

Case Study: Complete Paint Detackification & Floating Sludge Coagulation

BACKGROUND & TREATMENT CHALLENGES



Severe Equipment Fouling

Sticky paint mist coated nozzles, pumps, and heat exchangers, causing frequent mechanical downtime.



Sinking Sludge & Odors

Dense sludge settled at the bottom, leading to anaerobic decay and foul odors.

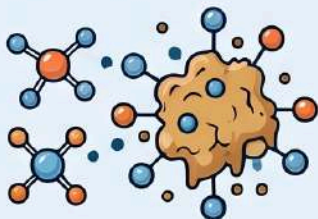


Frequent Water Discharge

High particulate build-up forced manual tank cleaning and full water replacement every 15 days.

THE SENDACHEM PCA/PCB SOLUTION

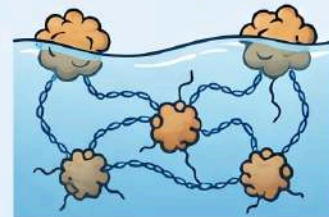
Agent A (PCA-100) Detackifier



Molecular Neutralization

Penetrates and neutralizes sticky resin functional groups to eliminate paint tackiness at the molecular level.

Agent B (PCB-200) Flocculant



Polymer Bridging & Flotation

High-molecular polymer bridges deactivated particles, driving rapid flotation to the water surface for skimming.



Comparison: Conventional vs. SENDACHEM AB System

Metric	SENDACHEM	Conventional Chemicals
Detackification:	100% (Complete Passivation)	~70% (Incomplete)
Sludge Behavior:	100% Surface Flotation	Sinks to bottom
Water Cycle:	6-12 Months	15 Days



PROVEN PERFORMANCE



**80%–85%
Water Savings**

Recirculation cycles extended up to 12 months, drastically reducing wastewater disposal volume.



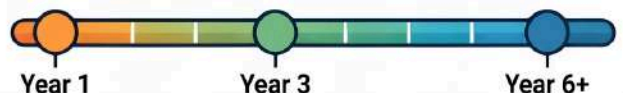
**-75%
Maintenance
Costs**

100% detackification eliminated the need for manual tank scraping and unexpected equipment downtime.

APPLICATION VALUE

**6+ Years of
Performance**

**"Better Chemistry.
A Cleaner Tomorrow."**



6+ years of stable operation with crystal-clear recirculating water and zero residue.

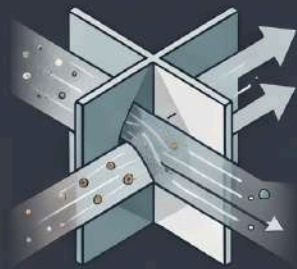
CASE STUDIES

Filter Box: Dry Spray Paint Booth

High-Efficiency Industrial Paint Mist Collection: The SENDACHEM Dry Spray Filtration Advantage

A superior operational shift from wet to dry filtration for industrial coatings.

1. Background & Overview



High-Performance Industrial Mist Capture

Engineered specifically for capturing paint mist and overspray in high-demand industrial coating processes.

The Modern Dry Filtration Alternative

A high-efficiency, eco-friendly replacement for traditional wet filtration systems that eliminates water overhead and chemical additives.



2. Operational & Technical Challenges of Traditional Systems

01. High Annual Operating Costs & Water Overhead

Traditional wet systems require significant water usage and expensive wastewater treatment chemicals.



02. Frequent Filter Clogging (8–12 Replacements/Year)

Standard filters suffer from premature clogging, with a limited service life of only 100–150 hours.



03. High Labor & Maintenance Downtime

Frequent system interruptions and high labor costs are required to manage inefficient traditional filtration setups.



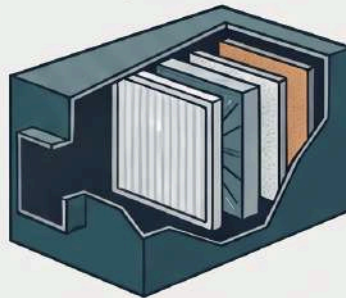
3. The SENDACHEM Dry Spray Filtration Box Solution

TRADITIONAL ALKALINE/WET WORKFLOW (Inefficient)



Replaces inefficient alkaline/wet workflows with a streamlined dry capture process.

SENDACHEM VENTURI-BASED DRY FILTER BOX (Streamlined)



Patented Venturi-based airflow pathway achieves superior particle capture with low pressure drop.



Innovative Airflow Engineering

Ensures even airflow distribution, preventing localized loading.

Robust Industrial Construction

Built with heavy-duty, fire-resistant materials for durability and safety in volatile spray environments.



4. Proven Performance & Key Cost Metrics

30% – 40%

Annual Operating Cost Savings



50% – 60%

Reduction in Replacement Frequency



2x

Longer Filter Service Lifetime



5. Strategic Application Value & Safety



Wide Industry Adaptability

Maximum Fire Safety & Compliance

Constructed with fire-resistant materials to meet strict local regulatory and safety requirements for high-hazard environments.



Automotive



Coatings



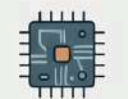
Furniture



Home appliances



Metal processing



Electronics