

MCP SERVER

NO CODE

CLOUD HOSTED

Bottling Sterile Filter Requirements MCP

Get precise filtration specs and hardware configurations for liquid bottling.

Bottling Sterile Filter Requirements MCP handles the math for safe liquid filtration. It connects your AI client to a specialized calculation engine designed for wine production and microbial risk assessment. Use it to pick the right pore size, determine membrane surface area, and select the physical hardware needed to prevent clogging and ensure sterility.

A+ Quality Score 100/100

filtration

bottling

microbiology

wine-production

quality-control



The connectivity layer between AI and the world's software.

Vinkius sits between AI and every application. All communication passes through Vinkius Cloud via the Model Context Protocol (MCP) — with governance, observability, and security at every layer.

Your AI Connections Run Through Vinkius Cloud

The world's largest
managed MCP catalog

Vinkius is the connectivity layer where AI connects to the software your business already runs. We handle the hosting, the security, the credentials, the uptime — you get agents that actually do things.

We operate the world's largest managed MCP catalog. Major SaaS platforms, CRMs, databases, and cloud providers — running, monitored, production-ready. This MCP server is hosted and maintained by the Vinkius Cloud for AI Agents.

The agent doesn't manage credentials, doesn't manage uptime, doesn't manage security. Vinkius does.

— Architecture principle

Four Pillars of the Vinkius Runtime

01 — Security by design

Credentials stay encrypted at rest via AES-256. The AI agent never touches raw keys — they're injected into a sandboxed V8 isolate at runtime. Actions are logged, and connections have an emergency kill switch.

03 — Deterministic observability

Eight immutable metrics per endpoint: request volume, p95 latency, error rate, active connections, cost attribution. A live payload feed logs every tool call with mutation detection.

02 — Built on MCP Fusion

This MCP server was built with **MCP Fusion**, the open-source framework (Apache 2.0) that powers the entire Vinkius catalog. Schema-as-firewall strips undeclared fields, compiled PII redaction runs at zero overhead, and cryptographic lockfiles produce git-diffable audit trails.

04 — Autonomous operations

Servers are deployed, monitored, and patched autonomously. New capabilities and security patches ship weekly. Zero-downtime deployments ensure continuous availability across all managed MCP servers.

AES-256

Encryption at rest

Ed25519

PKI vault signatures

24h TTL

Ephemeral session keys

V8 Isolate

Sandboxed execution

One Token. Instant Access.

Every MCP server on Vinkius is accessed through a **Connection Token**. Tokens are generated in the cloud dashboard and produce a unique MCP endpoint URL. Paste this URL into any MCP-compatible client — no SDK required.

A single token can serve **multiple AI clients simultaneously**, or you can issue separate tokens per client for granular access control. Each token tracks its own request count, last activity timestamp, and can be individually enabled or revoked.

MCP ENDPOINT`https://edge.vinkius.com/{token}/mcp`

Claude



Cursor



VS Code



Windsurf



Grok



Gemini

Security Is the Architecture

Security in Vinkius is not a feature — it's the foundation of the runtime. The gateway enforces multiple independent protection layers between AI agents and third-party APIs.

01 — Ed25519 PKI Vault

Every workspace has an Ed25519 Master Key. Session keys are generated ephemerally (24h TTL) and signed by the Master Key. Credentials never leave the vault boundary.

02 — V8 Isolate Sandboxing

Tool code runs inside isolated-vm V8 isolates with 64 MB memory caps and per-request timeouts. No filesystem access, no network access except through the SSRF-guarded fetch bridge.

03 — SSRF Guard

All outbound HTTP requests are DNS-resolved and validated before execution. Private IP ranges (10.x, 172.16-31.x, 192.168.x, AWS metadata 169.254.x) are blocked at the network layer.

05 — Cryptographic Audit Trail

Every request is signed into a SHA-256 hash chain with Ed25519 signatures. Events form a tamper-proof, SIEM-exportable forensic record.

04 — DLP & PII Redaction

A ResponseGuard pipeline intercepts every tool response. Configurable redaction patterns strip sensitive fields (emails, SSNs, card numbers) before data reaches the AI agent.

06 — Honeypot Trap System

Phantom credentials are injected into isolated environments. If a honeypot is used outside Vinkius infrastructure, the server is quarantined instantly.

Emergency Kill Switch

EU AI Act Art. 14(1)
Compliant

The kill switch is an **emergency halt** mechanism — not a simple toggle. When triggered, it executes three actions atomically:

01 — Server deactivated

The MCP server is immediately taken offline across the entire cluster.

02 — All tokens revoked

Every connection token is invalidated. Total lockout — reconnection blocked until new tokens are issued.

03 — WebSocket connections killed

Active connections terminated via Redis pubsub broadcast. Propagates to every runtime node in the cluster.

Full Visibility. Zero Guesswork.

The Vinkius cloud dashboard includes a full MCP Governance suite — real-time analytics and security controls for production AI operations.

Control Plane

KPI dashboard with request volume, latency, success rate, token consumption, and AI-generated operational briefings.

FinOps

Cost tracking per tool, payload compression savings, budget optimization signals, and consumption trends.

Firewall & DLP

PII redaction activity, sensitive data protection counters, and security event timeline.

Agent Activity

Which AI clients are connecting, how often, and what they're doing — real-time session tracking.

Tool Health

Slowest and most error-prone tools, with actionable root-cause insights and performance baselines.

Incident Log

Error trends, failure rates, status-code breakdowns, and forensic audit trail access.

Get started at cloud.vinkius.com — connect your AI agent in under 60 seconds.

Bottling Sterile Filter Requirements MCP

5 tools available

Cloud-hosted on Vinkius

You can use this MCP to bridge the gap between microbial risk assessment and physical filtration hardware. It is built specifically to handle the technical requirements of liquid bottling, with a heavy focus on wine production safety. Instead of manual calculations, your agent can determine the exact membrane diameter needed based on your specific microbial load and target sterility levels.

Once you have the right pore size, the MCP calculates the total membrane area required to process your specific volume. It also translates those area requirements into actual physical hardware needs, telling you exactly which cartridge configurations you'll need on the floor. To prevent equipment failure, it evaluates whether you need a pre-filter to stop your primary membranes from clogging. Finally, it provides the validation protocols required to ensure your setup meets safety standards through integrity testing.

Core Capabilities

01 — Pore Size Selection

Your agent picks the right membrane diameter based on microbial load and risk profiles.

03 — Hardware Configuration

It translates mathematical area requirements into physical cartridge counts and setups.

05 — Validation Planning

It identifies the integrity test protocols needed to validate your filtration process.

02 — Surface Area Calculation

The MCP calculates the total membrane area needed for your specific liquid volume.

04 — Clogging Prevention

The tool evaluates if pre-filtration is necessary to protect your sterile membranes.

One Click on Vinkius — From Prompt to Execution

Available at vinkius.com/en/ai-agent-connect/bottling-sterile-filter-requirements — connect your AI agent in three steps.

- 01 Connect your preferred MCP-compatible client to Vinkius.
- 02 Provide your liquid volume and microbial load data to your agent.
- 03 The agent uses the MCP tools to run calculations for pore size, area, and hardware.
- 04 Receive specific hardware requirements and validation protocols.

Connect your AI client to Vinkius to access the calculation engine.

Built For

This MCP is designed for professionals managing liquid bottling and microbial safety in production environments.

Winemakers

They hand off microbial load data to get precise filtration and hardware specs.

Quality Control Technicians

They use the tool to determine necessary integrity test protocols and validation steps.

Production Engineers

They use the hardware configuration outputs to set up physical filtration equipment.

What Changes When You Connect

- 01 Calculates exact membrane area based on volume and microbial load.
- 02 Determines physical hardware needs from calculated surface area.

- 03

Identifies necessary pre-filtration to prevent membrane clogging.
- 04

Provides specific integrity test protocols for process validation.

Real-World Applications

Wine Sterilization

Calculate the exact pore size and surface area needed to ensure a specific sterility assurance level for a wine batch.

Process Validation

Identify which integrity tests are required for a specific pore size and cartridge setup.

Equipment Planning

Convert required filtration area into a specific number of cartridges for a production run.

Membrane Protection

Assess if a pre-filter is required to prevent your sterile membranes from clogging during a run.

5 Tools Available

#	TOOL	DESCRIPTION
01	calculate_filtration_surface_area	This tool finds the total membrane area you need to process a specific volume under your current microbial conditions.
02	calculate_integrity_test_requirements	This tool determines the specific validation protocols required for your selected filtration setup.
03	determine_cartridge_configuration	This tool converts your required surface area into a list of physical hardware requirements.
04	evaluate_pre_filtration_need	This tool checks if you need a pre-filter to protect your sterile membrane from clogging.
05	select_pore_size	This tool recommends the optimal pore size, such as 45µm or 0.65µm, based on your microbial load and target SAL.

See It in Action

Real prompts you can use once this MCP is connected to your AI agent through Vinkius Cloud.

U I have 5000 liters of wine with a microbial load of 10 microbes/ml. I need a sterility assurance level of $1e-6$. What pore size should I use?



Based on a microbial load of 10 microbes/ml and a target SAL of $1e-6$, the recommended pore size is $0.45\mu\text{m}$, which carries a High risk level.

U How many cartridges do I need if my required surface area is 15 square meters and each cartridge provides 0.5 square meters?



You will need 30 cartridges to provide a total capacity of 15.0 square meters.

U What kind of integrity test is required for a $0.45\mu\text{m}$ pore size with 5 cartridges?



For a $0.45\mu\text{m}$ pore size and 5 cartridges, the required test protocol is Diffusion, with the specific pass criteria defined by the membrane manufacturer's threshold.

Frequently Asked Questions

01 What kind of liquids is this MCP for?

The calculation engine is specifically optimized for liquid bottling, particularly wine production.

02 How does it determine the pore size?

It uses your microbial load and target sterility assurance level (SAL) to recommend the optimal pore size, such as $0.45\mu\text{m}$ or $0.65\mu\text{m}$.

03 Can it help with equipment setup?

Yes, it translates the required surface area into the specific number of cartridges and physical hardware configurations you need.

04 Does it help prevent membrane failure?

It includes a tool to evaluate if a pre-filter is necessary to protect your sterile membranes from clogging.

05 How do I know if my filtration is valid?

The MCP calculates the specific integrity test requirements, such as Diffusion tests, needed for your setup.

06 How do I decide between 0.45µm and 0.65µm pore sizes?

You can use the `select\_pore\_size` tool. It evaluates the microbial load and your required Sterility Assurance Level (SAL) to recommend the safest and most efficient pore size for your specific liquid.

07 Will this tool tell me how many filter cartridges I need to buy?

Yes. After calculating the required surface area, use `determine\_cartridge\_configuration` to get the exact number of cartridges required based on the surface area of your specific hardware.

08 Does this account for pre-filtration requirements?

Yes, the `evaluate\_pre\_filtration\_need` tool analyzes the microbial load and pore size to determine if a pre-filter is necessary to prevent the primary sterile membrane from clogging.

Go Live in 60 Seconds

Get your connection token from cloud.vinkius.com, then paste the endpoint URL into any MCP-compatible client.

YOUR MCP ENDPOINT

`https://edge.vinkius.com/[TOKEN]/mcp`

CLIENT	WHERE TO CONFIGURE
 Claude AI	Profile → Customize → Connectors → "+" → Add custom connector → Paste endpoint
 Cursor	Settings → Features → MCP Servers → "+ Add New MCP Server" → Type: SSE → Paste endpoint
 VS Code	Ctrl/Cmd+Shift+P → "MCP: Add Server" → add <code>"bottling-sterile-filter-requirements": { "url": "..." }</code>
 Windsurf	MCP Settings → <code>mcp_settings.json</code> → Add endpoint URL
 ChatGPT	Settings → Tools & plugins → Add MCP server → Paste endpoint
 Gemini	Extensions → Add MCP Server → Paste endpoint URL

ASK AN AI ABOUT THIS

Let your preferred AI explain this MCP server

 Ask ChatGPT

 Ask Claude

 Ask Perplexity

 Ask Gemini

 Ask Grok

READY TO CONNECT

Bottling Sterile Filter Requirements is live on Vinkius Cloud.

Get your connection token, paste it into your AI agent, and
start building. No SDK. No deployment. Just results.

Start at cloud.vinkius.com →

vinkius.com · support@vinkius.com

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DOCUMENT INFORMATION

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Platform	Vinkius Cloud for AI Agents
Endpoint	https://edge.vinkius.com/{token}/mcp

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