MCP SERVER | NO CODE | CLOUD HOSTED

Ratio to Volume Converter MCP for AI Agents

Accurate liquid component scaling for chemical and culinary mixing

The Ratio to Volume Converter instantly scales liquid ratios into precise milliliters based on any target total volume. If you're mixing chemicals, brewing beer, or formulating cleaning agents, this MCP calculates exactly how much of each component you need to hit a specific concentration without manual math.

A+ Quality Score 100/100

volumetric | ratio | conversion | scaling | measurement

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vinkius.com/mcp/ratio-to-volume-converter

SCAN TO VIEW

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.

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.

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.

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	Ed25519	24h TTL	V8 Isolate
Encryption at rest	PKI vault signatures	Ephemeral session keys	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.

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.

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.

06 — Honeytoken Trap System

Phantom credentials are injected into isolated environments. If a honeytoken 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.

Agent Activity

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

FinOps

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

Tool Health

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

Firewall & DLP

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

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.

Ratio to Volume Converter MCP

2 tools available
Cloud-hosted on Vinkius

Mixing liquids accurately is tough—a tiny calculation error can ruin a batch. This connector solves that problem by taking simple ratios and a desired total volume, then calculating the exact milliliter amount for every single part. Whether you're working in a commercial kitchen, a lab, or building cleaning supplies, maintaining precise concentrations matters. You input your parts (like 1 part bleach to 4 parts water) and the final size (500ml), and it gives you the breakdown instantly. It also tells you what percentage of the total mixture each component is, which is crucial for quality control. Plus, it checks if any calculated amount falls below a practical minimum threshold, saving you from unusable measurements. You connect this MCP through Vinkius, giving your AI client immediate access to complex chemical and culinary calculations.

Core Capabilities

01 — Calculate Component Volumes

Determines the exact milliliter amount for every component given a ratio and a final total volume.

02 — Determine Percentage Composition

Calculates what percentage of the total mixture each ingredient contributes based on its proportion in the ratio.

03 — Check Minimum Volume Limits

Verifies if any required component volume falls below a specified usable or practical threshold.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/ratio-to-volume-converter** — connect your AI agent in three steps.

01 You provide the desired ratio of ingredients (e.g., 2:3) and the total final volume you need to create.

02 The MCP processes these inputs, calculating the precise milliliters needed for every component in the mix.

03 It returns a detailed list showing individual volumes, percentage breakdowns, and confirmation that all measurements exceed practical minimums.

The bottom line is: you stop guessing ratios and start getting scientifically accurate quantities instantly.

Built For

This MCP is built for people who deal with liquid formulations. Think chemists, industrial bakers, brewers, or anyone in quality control who needs to mix ingredients based on strict ratios and volumes. It's for the person frustrated by spreadsheets and manual calculations.

Lab Technician

Uses it daily when preparing chemical solutions or reagents that require accurate volumetric scaling.

Food Scientist/Baker

Calculates precise liquid additions for recipes, ensuring consistency whether making a small test batch or a large industrial run.

Formulation Chemist

Determines the exact concentrations needed for cleaning agents or chemical mixtures by balancing ratios against total volume targets.

What Changes When You Connect

01 Consistency across batches. You eliminate manual math when calculating ingredient amounts, ensuring every batch is identical.

02 Safety and compliance. The MCP checks if calculated volumes fall below practical limits using `check_volume_threshold_violation`, preventing unusable mixes.

03 Full visibility into your recipe. Get instant percentage breakdowns of the final mix with `get_percentage_composition`, vital for quality control reports.

04 Time savings. You skip hours of spreadsheet work. Your agent handles complex ratios in seconds, letting you focus on formulation, not math.

05 Precision scaling. Need to scale a formula from 1 liter to 50 milliliters? The tool adjusts the entire ratio instantly and accurately.

Real-World Applications

Scaling Cleaning Solutions for Commercial Use

A facility manager needs to make 200 gallons of floor cleaner using a strict bleach-to-water ratio. Instead of cross-referencing safety sheets, the agent uses this MCP to calculate the precise milliliters needed for every component, ensuring perfect concentration.

Developing Consistent Baked Goods

A baker needs to adjust a core recipe that uses several liquid ratios (e.g., buttermilk to oil). The agent calculates the required amounts based on a desired total batch size and checks if any component falls below the minimum usable threshold.

Formulating Custom Chemical Reagents

A research chemist needs to scale a reagent from test tube size (10ml) up to 5 liters. The MCP provides both the exact milliliter measurements and confirms the percentage composition of the final, large-scale solution.

Patterns to Avoid

Calculating by approximation

✗ AVOID

Using a rough estimate or simple multiplication to scale a recipe up when the ratio is complex. This leads to inconsistent product quality.

✓ INSTEAD

Use this MCP to calculate volumes based on exact ratios and your target total volume. It handles complex scaling, ensuring perfect precision every time.

Ignoring minimum thresholds

✗ AVOID

Assuming a component is usable even if the calculated amount drops below the required practical threshold, leading to failed batches.

✓ INSTEAD

Always run your numbers through the MCP's volume checks. The `check_volume_threshold_violation` tool flags unsafe or impractical measurements immediately.

Mixing up ratios and percentages

✗ AVOID

Confusing the ratio parts with the final percentage composition, leading to inaccurate formulation reports.

✓ INSTEAD

The MCP provides two distinct outputs: the required volume for each part, and a separate breakdown showing what percentage of the total mix each component represents.

The Right Fit

Use this Ratio to Volume Converter if your task involves mixing liquids where precise concentration is non-negotiable. If you are balancing ratios against a fixed total volume (like scaling a recipe or developing chemicals), this MCP is what you need. Don't use it if you just need to convert one unit of measure to another, like liters to milliliters—a simple math tool will suffice. You should also avoid relying on it for non-liquid mixtures, as its function assumes liquid ratios and volumetric scaling.

Ratio to Volume Converter MCP: Precise Liquid Scaling in Formulation Chemistry

Right now, if you're formulating a new chemical cleaner or adjusting an industrial mix, you spend ages cross-referencing safety data sheets and doing manual math. You copy ratios into spreadsheets, struggle with unit conversions, and constantly check if your final calculated volume is even usable in the field.

With this MCP, you just tell your agent the ratio parts and the desired total size. It instantly spits out every component's exact milliliters needed. You get actionable numbers that work for real-world industrial mixing.

Ratio to Volume Converter: Maintaining Concentration Accuracy in Culinary Science

In baking or brewing, the manual steps are tedious: calculating a new batch size means recalculating every single ingredient's volume and checking if that ratio still makes sense for the equipment you have.

This MCP handles all of it. It calculates the necessary volumes while also confirming what percentage each liquid contributes to the final mix. You get consistency without ever touching an equation.

2 Tools for Accurate Volumetric Ratio Calculations

Use these tools to check component viability against minimum thresholds and determine the percentage breakdown of any mixture.

#	TOOL	DESCRIPTION
01	`check_volume_threshold_violation`	Checks if a component's calculated volume is too low to be usable in the final mixture.
02	`get_percentage_composition`	Calculates and returns what percentage of the total mix each ingredient represents based on its ratio part.

See It in Action

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

U I need 150ml total volume for a disinfectant using a 2:1 bleach-to-water ratio. How much of each do I use?

Disinfectant Batch Calculation

For a 150ml total volume with a 2:1 ratio, you'll need:
- Bleach: **100 ml**
- Water: **50 ml**

(Total: 150 ml)

This mix is above the minimum practical threshold of 10ml for both components.

U What are the percentages if I mix vinegar and oil in a 3:5 ratio?

Mixture Composition Analysis

The resulting mixture composition is:
- Vinegar: **37.5%** of total volume
- Oil: **62.5%** of total volume

This breakdown helps you ensure the final product matches quality control specs.

U I calculated a component at 4ml, but my minimum threshold is 10ml. Is this okay?

Volume Threshold Check

⚠️ **Violation Detected!** ⚠️
The calculated volume of 4ml falls below your defined practical limit of 10ml. You need to adjust the ratio or increase the total desired volume before proceeding.

Frequently Asked Questions

01 **How does the Ratio to Volume Converter help with scaling recipes?**

It automatically scales any liquid recipe based on ratios and a new target size. You simply input your old ratio and the desired final volume, and it gives you perfect milliliter measurements for every ingredient.

02 **Can I use this MCP if I'm making chemical solutions in the lab?**

Yes, that's exactly what it's built for. You give it your component ratios and total volume, and it calculates precise amounts while also checking if any measurement is too small to be practical.

03 **What is the difference between calculating volumes and getting percentage composition?**

Calculating volumes gives you the specific milliliters needed for a target batch size. Getting percentage composition tells you what proportion (the %) of the final mixture each ingredient makes up, which helps with quality reporting.

04 **Does this MCP know if my calculation is actually possible?**

It does. It includes a built-in check that verifies your measurements against a practical minimum threshold. If an amount is too small to be useful, it flags the violation instantly.

05 **Is this better than just using online ratio calculators for cooking?**

Yes, because it's smarter. It handles ratios and volumes together, gives you component percentages, *and* checks for minimum usability thresholds—all in one place.

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 `"ratio-to-volume-converter": { "url": "…" }`
Windsurf	MCP Settings → `mcp_settings.json` → 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

Ratio to Volume Converter 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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