MCP SERVER | NO CODE | CLOUD HOSTED

Cement Slurry Yield Calculator MCP

Get precise fluid and material volumes for cementing jobs.

Cement Slurry Yield Calculator MCP handles the heavy lifting for wellbore fluid calculations. Your AI client uses this tool to determine exact slurry yields, cement sack counts, and water requirements. It manages complex geometry volumes and total pumping requirements, including excess and spacer volumes, so you don't have to manually crunch the numbers for every job.

A+ Quality Score 100/100

cement | slurry | wellbore | engineering | volume-calculation

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vinkius.com/en/ai-agent-connect/cement-slurry-yield-calculator

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.

Cement Slurry Yield Calculator MCP

5 tools available
Cloud-hosted on Vinkius

You can stop manually calculating fluid volumes for every cementing operation. This MCP gives your AI agent the specific engineering math needed to handle wellbore and piping geometries. When you're planning a job, your agent can use it to find the exact volume of a cylindrical space or determine how much a single sack of cement will actually produce once mixed.

It goes beyond simple math by accounting for real-world variables. You can have your agent calculate the total number of sacks needed for a specific volume or figure out the total water required for the entire operation. It even handles the final pumping volume by factoring in your excess requirements and spacer volumes. Instead of jumping between spreadsheets, you just give your agent the parameters and get the numbers you need for the field.

Core Capabilities

01 — Volume Calculations

Your agent calculates theoretical volumes for pipes and holes.

02 — Material Requirements

The AI determines the exact number of cement sacks needed for a job.

03 — Fluid Planning

Your agent calculates total water volumes and final pumping volumes.

04 — Slurry Yield Analysis

The tool finds the yield per sack based on density and water ratios.

05 — Job Totals

Your agent combines hole volume, excess, and spacers into one total pumping volume.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/en/ai-agent-connect/cement-slurry-yield-calculator** — connect your AI agent in three steps.

01 Connect the MCP to Claude, Cursor, or Windsurf via Vinkius.

02 Provide your wellbore or slurry parameters to your AI client.

03 The agent uses the specific engineering tools to run the math.

04 Receive precise volumes, sack counts, or water requirements immediately.

Connect the MCP to your AI client and start asking for engineering calculations.

Built For

This MCP is built for petroleum engineers and field technicians who need fast, accurate volume math for cementing operations.

Petroleum Engineer

Hands off wellbore geometry and slurry specs to the AI to get material counts.

Cementing Supervisor

Uses the AI to verify total pumping volumes and water needs before a job starts.

Field Technician

Asks the agent for quick sack requirements and yield checks on site.

What Changes When You Connect

01 Reduces manual calculation errors in wellbore volume math.

02 Provides instant sack and water requirements for cement jobs.

03 Accounts for excess and spacer volumes in total pumping calculations.

04 Works directly within your existing AI client workflow.

Real-World Applications

Wellbore Planning

Calculate the exact volume of a hole to ensure you have enough cement on hand.

Pipe Volume Checks

Determine the theoretical volume of specific pipe diameters and lengths.

Material Ordering

Get the total sack count for a job to prevent shortages during cementing.

Slurry Design

Find the yield per sack based on specific density and water ratio inputs.

5 Tools Available

#	TOOL	DESCRIPTION
01	calculate_job_total_volume	This tool finds the total fluid volume to be pumped by combining hole volume, excess, and spacer requirements.
02	calculate_sack_requirements	Use this to find exactly how many sacks of cement are needed to fill a specific volume.
03	calculate_slurry_yield	This tool determines the volume one sack of cement produces when mixed.
04	calculate_water_volume	This tool calculates the total amount of water required for an entire cementing operation.
05	calculate_geometry_volume	This tool calculates the theoretical volume of a cylindrical space like a hole or a pipe.

See It in Action

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

U What is the yield for a slurry with a density of 15.8 ppg and a mix water ratio of 5.0 gal/sk?

The yield per sack for a slurry with 15.8 ppg density and a 5.0 gal/sk water ratio is 1.25 cubic feet.

U How many sacks of cement do I need for a 500 cubic foot volume if the yield is 1.25 ft^3/sack and I want a 10% excess?

You will need 44 sacks of cement.

U Calculate the volume of a 7-inch diameter pipe that is 100 feet long.

The theoretical volume for a 7-inch diameter pipe with a length of 100 feet is 20.55 cubic feet.

Frequently Asked Questions

01 **What can this MCP calculate?**

It calculates slurry yield, cement sack requirements, water volumes, cylindrical geometry volumes, and total pumping volumes including excess and spacers.

02 **Which AI clients can use this MCP?**

You can use this with any MCP-compatible client like Claude, Cursor, or Windsurf.

03 **Does this account for excess volume?**

Yes, the tool for calculating total job volume specifically combines hole volume, excess, and spacer requirements.

04 **How do I get the total water needed for a job?**

You can ask your AI agent to use the water volume tool to determine the total amount required for the entire operation.

05 **Can I calculate pipe volumes?**

Yes, the geometry volume tool calculates the theoretical volume for cylindrical spaces like pipes or holes.

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 `"cement-slurry-yield-calculator": { "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

Cement Slurry Yield Calculator 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

INDEPENDENT PLATFORM DISCLAIMER

DOCUMENT INFORMATION

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MCP Server	Cement Slurry Yield Calculator MCP
Server ID	`01a086a3-4848-7052-8dad-8cffdd0b0db2`
Platform	Vinkius Cloud for AI Agents
Endpoint	`https://edge.vinkius.com/{token}/mcp`

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