

M C P S E R V E R

N O C O D E

C L O U D H O S T E D

Diesel Blend Calculator MCP

Predict fuel properties and check regulatory compliance instantly.

Diesel Blend Calculator is a specialized calculation engine for fuel engineers. It lets your AI client determine mass composition, predict chemical properties like Cetane Index and sulfur levels, and calculate cold flow metrics including Cloud Point and Pour Point. You can also verify if your blends meet specific USA or European sulfur standards.

A+

Quality Score 100/100

diesel

fuel

blending

cetane

sulfur

cold-flow



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.

Diesel Blend Calculator MCP

4 tools available

Cloud-hosted on Vinkius

You can now run complex fuel blending calculations directly through your AI client. Instead of manually calculating mass fractions or looking up sulfur limits, you just give your agent the component data. This MCP handles the heavy lifting for diesel fuel engineering. You can use it to find the exact mass and weight percentage of components in a proposed mix. Once you have the composition, your agent can predict the resulting Cetane Index and sulfur content. If you need to worry about winter performance, the tool calculates Cloud Point, Pour Point, and CFPP. It also acts as a compliance check, verifying if your specific blend meets the sulfur requirements for the USA or Europe. It turns your AI into a technical fuel specialist that can validate blends before they ever hit the production stage.

Core Capabilities

01 — Mass Composition

Your agent calculates the total mass and weight percentages of all fuel components.

02 — Chemical Property Prediction

The AI predicts Cetane Index and sulfur levels based on your blend inputs.

03 — Cold Flow Analysis

Your agent determines Cloud Point, Pour Point, and CFPP for winterization checks.

04 — Regulatory Verification

The tool checks if your blend meets USA and European sulfur standards.

One Click on Vinkius — From Prompt to Execution

Available at vinkius.com/en/ai-agent-connect/diesel-blend-calculator — connect your AI agent in three steps.

- 01 Connect your AI client to the Vinkius hosted MCP.
- 02 Provide the component weights or mass fractions to your agent.
- 03 Ask the agent to predict chemical or cold flow properties.
- 04 Request a compliance check against regional sulfur standards.

Connect the MCP to your AI client and start running calculations through natural language.

Built For

This MCP is built for professionals in the fuel and petrochemical industries who need fast, accurate blending calculations.

Fuel Engineer

Hands off mass composition and property prediction tasks to the AI.

Quality Control Specialist

Uses the tool to verify if blends meet regional sulfur compliance.

Chemical Engineer

Delegates cold flow property calculations to the agent.

What Changes When You Connect

- 01 Automates mass fraction and weight percentage calculations.
- 02 Predicts chemical and cold flow properties without manual formulas.
- 03 Validates sulfur compliance against USA and European standards.

- 04** Provides technical fuel data directly within your AI chat interface.
-

Real-World Applications

Blend Design

Define component weights and immediately see the resulting mass composition.

Compliance Auditing

Verify that a new diesel blend stays within legal sulfur limits for specific regions.

Winterization Planning

Check if a specific blend will meet required Cloud Point and Pour Point metrics.

Property Estimation

Estimate the Cetane Index of a mixture before physical testing begins.

4 Tools Available

#	TOOL	DESCRIPTION
01	predict_chemical_properties	This tool calculates the final Cetane Index and sulfur content for your total fuel blend.
02	predict_cold_flow_properties	Use this to find the Cloud Point, Pour Point, and CFPP of the resulting diesel blend.
03	validate_regulatory_compliance	This tool checks if your calculated blend meets regional sulfur standards for the USA and Europe.
04	calculate_blend_composition	This tool determines the total mass and the weight percentage of every component in a proposed blend.

See It in Action

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

U Calculate the composition for a blend of 500kg of component A and 500kg of component B.



The total mass is 1000kg, with each component having a mass fraction of 0.5.

U What is the sulfur content for a blend with a 0.8 mass fraction of a component having 15 ppm sulfur?



The resulting sulfur content for that component contribution is 12 ppm.

U Is a blend with 10 ppm sulfur compliant with USA regulations?



Yes, a sulfur content of 10 ppm is compliant with the USA regulatory limit.

Frequently Asked Questions

01 Which AI clients can use this MCP?

You can use this MCP with any compatible client including Claude, Cursor, Windsurf, and VS Code.

02 What sulfur standards does it check?

The tool validates compliance against specific sulfur standards for the USA and Europe.

03 Can it calculate cold flow properties?

Yes, it calculates Cloud Point, Pour Point, and CFPP for your diesel blends.

04 Do I need to host the MCP myself?

No, Vinkius hosts and manages the MCP for you. You just connect and use it.

05 What kind of chemical properties can it predict?

It predicts the Cetane Index and sulfur content of the total blend.

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>"diesel-blend-calculator": { "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

Diesel Blend 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

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DOCUMENT INFORMATION

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

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