

\$STEEL Whitepaper: Low-Background

Oct 10, 2026 · Low-Background (\$STEEL)

Abstract

STEEL is a market for the one input AI cannot make for itself: human data created before 30 November 2022, the day ChatGPT went public.

Contributors deposit provably pre-AI datasets into an on-chain vault. Staked validators attest to their age and origin, anyone can challenge a fake, and AI labs pay USDC to license what survives.

The STEEL token secures that process. Validators stake it, contributors bond it, rewards are paid in it on a halving schedule, and a share of every license buys it back and burns it. Supply is fixed at 1,000,000,000, there is no presale, and the cutoff can never move.

Every pre-ChatGPT byte that will ever exist already exists. STEEL is the only asset AI can't print.

The problem

AI models trained on AI output get worse, and the open web is now full of AI output. A [Nature paper by Shumailov et al.](#) (24 July 2024) found that "indiscriminate use of model-generated content in training causes irreversible defects" in the resulting models.

That makes human data from before late 2022 a resource with three awkward properties:

- **Fixed supply.** Nobody can make more of it after the fact.
- **Hard to prove.** A file's own timestamp is easy to fake, so its age has to be shown with outside evidence.
- **Unpriced.** Labs scrape what they can and buy datasets one private deal at a time. Nothing prices data by when it was made, or pays the people who hold old archives.

Meanwhile, large pre-AI archives sit unused on old drives, forum backups, photo libraries and research notebooks. STEEL gives their owners a reason to bring them out, and a way to prove what they are.

Low-background steel

Steel made before the first nuclear tests in 1945 carries no fallout, so it is salvaged for instruments that need uncontaminated metal. AI researchers borrowed the term for data made before generative AI spread. John Graham-Cumming keeps a public catalogue of such sources at lowbackgroundsteel.ai, including the 20 August 2022 English Wikipedia dump and the August 2022 Common Crawl.

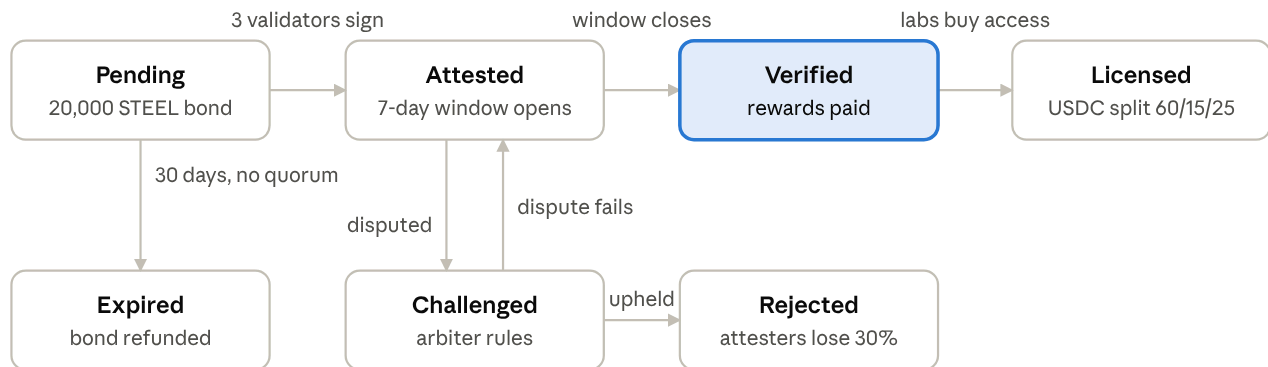
STEEL turns that idea into a market with one rule written into the program: **data must provably predate 30 November 2022, 00:00 UTC** (Unix time 1669766400). The cutoff is set once, when the vault is initialized. No key, admin or vote can change it afterwards.

That single rule is what fixes the supply of eligible data, and what makes every verified dataset scarce.

How the vault works

An ingot earns only after 3 staked validators sign and no challenge sticks

Lifecycle of one dataset in the steel_vault program



ingot lifecycle · 7 states, as coded in steel_vault

A dataset becomes a paid ingot only after three staked validators sign for it and nobody proves it fake within seven days.

- **Contributor** submits the dataset's hashes and claimed creation date with a 20,000 STEEL bond.
- **Validators** each stake at least 250,000 STEEL and check the evidence. Three must attest.
- **Challenger** is anyone with proof of a fake. They post a 50,000 STEEL bond during the 7-day window.

- **Arbiter** rules on challenges: a council multisig in v1, a staked juror pool later.
- **Licensee** is an AI lab paying USDC for 365 days of access to a verified ingot.

If a challenge is upheld, the challenger gets both bonds plus half of a 30% slash from every attester; the other half is burned. A submission that can't find three validators in 30 days expires, and its bond is refunded.

Provenance standard

An ingot is worth only what its evidence proves. Every submission carries an evidence bundle, and the bundle's SHA-256 hash is stored on-chain so it can't be swapped later.

Evidence validators weigh, strongest first:

1. **Independent archive matches.** The content, or its hashes, appear in a dated third-party archive such as Common Crawl, the Internet Archive or a public data dump.
2. **Timestamps made at the time.** Signed email headers, commits in a public repository, a published release, a notarized record.
3. **Original media and metadata.** Camera EXIF, file-system dates and physical media, checked for consistency with each other.
4. **Contamination screening.** A classifier flags machine-generated text, images or audio before any validator signs.

Rights come before rewards. A contributor must own the data or hold the right to license it, and personal data needs the consent of the people in it. Data that fails either test is rejected however old it is.

On-chain, the vault stores the content hash, evidence hash, claimed creation date, size, price and a link to the encrypted manifest. The data stays off-chain and is served by the STEEL gateway only to wallets holding a valid license.

The STEEL token

STEEL launches on a Raydium LaunchLab bonding curve with a fixed supply of 1,000,000,000. LaunchLab revokes mint authority at creation and sets no freeze authority, so nobody can mint more or freeze a holder's tokens.

What the token does:

- **Validator stake.** 250,000 STEEL minimum to attest. Attesting a fake costs 30% of stake.

- **Contributor bond.** 20,000 STEEL per submission. Refunded on verification, paid to the challenger if the data is fake.
- **Challenge bond.** 50,000 STEEL to dispute an ingot. Added to the rewards pool if the challenge fails.
- **Rewards.** Contributors and validators are paid in STEEL for every verified ingot.
- **Burn.** Part of every license fee buys STEEL on the market and burns it.

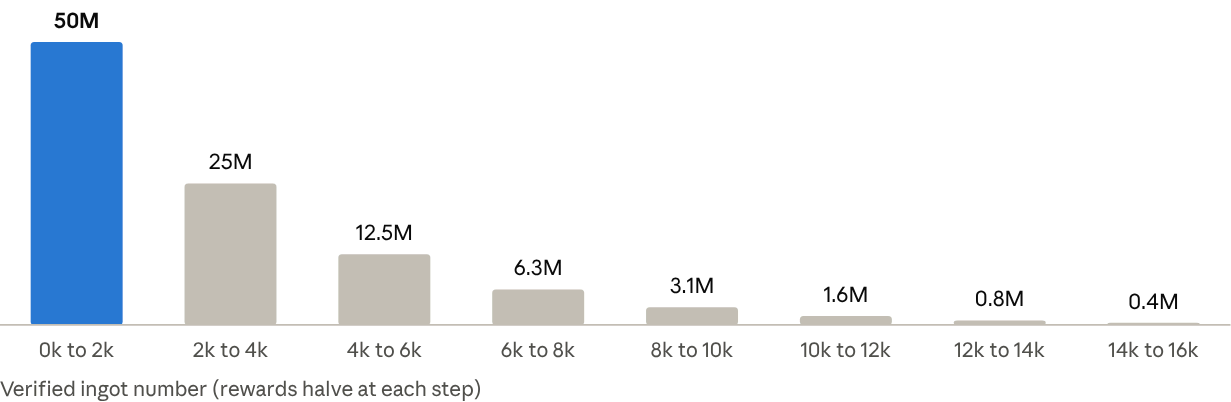
Allocation	Share	Tokens	Terms
Public (bonding curve)	60%	600,000,000	Sold on the LaunchLab curve; no presale
Graduation liquidity	15%	150,000,000	Paired with the SOL raised; LP burned at graduation
Founder	10%	100,000,000	Locked in LaunchLab vesting: nothing for 6 months, then monthly over 12. Can't be cancelled
Protocol reserve	15%	150,000,000	Locked in LaunchLab vesting to a multisig: nothing for about 4 months, then monthly over 24. 100M funds vault rewards, 50M the treasury

Nothing reaches a DEX until buyers have raised the graduation target. At graduation, 75% of supply is tradable: the curve and the pool. The founder's 10% and the 15% reserve are locked, and their wallets are published so anyone can track them.

Emissions

Half of all vault rewards go to the first 2,000 verified ingots

STEEL emitted per era of 2,000 verified ingots. Eras shown pay 99.6M of the 100M pool (99.6%).



computed from the vault's default parameters · eras 0 to 7

Rewards flow only when an ingot is verified, and they halve every 2,000 verified ingots, like Bitcoin's block reward. Era 0 pays 16,000 STEEL to the contributor and 3,000 to each of three validators: 25,000 per ingot.

The series approaches 100,000,000 STEEL, the vault-rewards part of the protocol reserve, and can never pass it. The program also checks the vault balance before every payout and reserves validator rewards at verification, so an early payout can never leave a later one unpaid.

Revenue

AI labs pay USDC per ingot for a 365-day license, and the program splits every payment on-chain the moment it lands.

Recipient	Share	How it is paid
Data contributor	60%	Instantly, in USDC
Validators who attested	15%	Accrued per ingot; each attester claims an equal share
Protocol	25%	To the treasury: 15 points buy STEEL on the market and burn it, 10 points fund operations

In v1 the 15/10 division of the protocol share is a treasury commitment, reported publicly every month. Phase 4 moves the buyback on-chain.

After graduation the pool earns fees too. Raydium's standard pool charges 0.25% per trade and pays 84% of it to liquidity providers ([Raydium docs](#)). LaunchLab's [creator fee share](#) sends 10% of those LP fees to the founder.

That fee share is the founder's only income while the founder's tokens are locked.

Fair launch

Everyone buys from the same bonding curve at the same prices. There is no presale, no private round and no whitelist, and none of the founder's SOL goes into the pool.

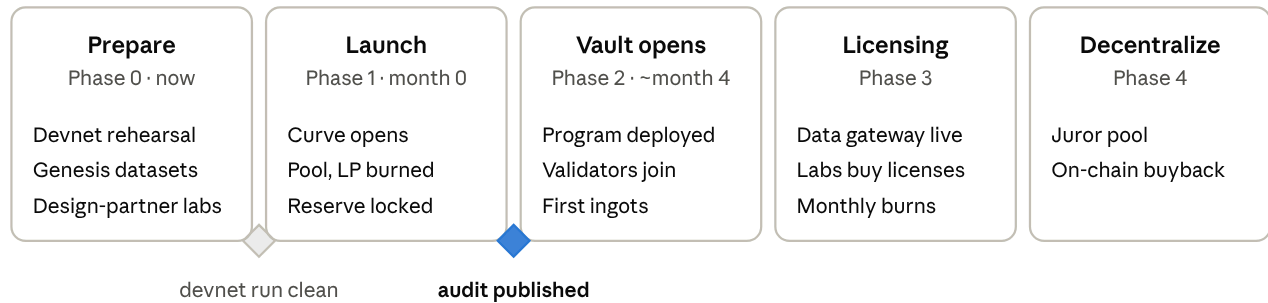
- **Curve.** 600,000,000 STEEL sell on a Raydium LaunchLab bonding curve that opens at an announced time.
- **Graduation.** When buyers have put in the target (24 SOL minimum), LaunchLab moves the token to a Raydium pool with 150,000,000 STEEL and [burns the LP](#). Nobody can pull that liquidity.
- **Supply.** Mint authority revoked and no freeze authority, both set by LaunchLab at creation ([LaunchLab accounts](#)).
- **Founder.** 10%, locked in [LaunchLab vesting](#): nothing for 6 months, then monthly over 12. The lock can't be cancelled, and the wallet is published.
- **Protocol reserve.** 15%, locked in [LaunchLab vesting](#) to a multisig. The schedule can't be changed or cancelled.
- **Proof.** The contract address, the founder wallet and the multisig are published on launch day.

At the 24 SOL minimum and the 10 October 2026 SOL price of \$109.01 ([Coinbase](#)), graduation sets the fully diluted value at about \$17,000. The price comes from the curve, not from a negotiated round.

Roadmap

Launch comes first; the vault opens only after a published audit

Five phases, left to right. Diamonds are gates that must be passed before the next phase starts.



roadmap · 5 phases, 2 gates · bands not to scale

The token launches on standard building blocks: a Raydium LaunchLab curve, a Raydium pool and LaunchLab vesting. The custom vault program holds nothing of value until an independent audit is published. Phase 4 removes the two remaining points of trust: the council arbiter and the manual buyback.

Risks

The biggest risk is that labs don't pay. The biggest technical risk is fake provenance getting through. Each risk below has a specific answer in the design.

Risk	What STEEL does about it
Fake or forged provenance	Contributor bonds, a 3-validator quorum, a 7-day open challenge window, 30% slashing
Validator collusion	Stake at risk on every attestation; half of each slash is burned; anyone can challenge with evidence
Central arbiter	A council multisig rules on challenges in v1; a staked juror pool replaces it in Phase 4
Copyright and privacy	Only data the contributor owns or may license; consent required for personal data
No buyers	Design partners lined up before the vault opens; reward emissions don't depend on revenue

Risk	What STEEL does about it
Smart contract bugs	Open source, 13 automated tests, independent audit before the vault holds value, verifiable build
Admin key misuse	Admin and upgrade rights move to a multisig; nobody can change the cutoff or unlock the pool
Founder selling	The founder's 10% is locked for 6 months, then releases monthly over 12 (about 8.3M STEEL a month). The schedule can't be changed, and the wallet is published, so every sale shows on-chain
Thin early liquidity	The pool starts small (at the 24 SOL minimum, a \$1,000 buy lifts the price about 90%). The LP is burned, so nobody can pull the liquidity
Regulatory change	Rewards pay for work (contributing, validating, challenging), not for simply holding

Disclaimer

This whitepaper describes software and a token design. It is not an offer to sell securities or a solicitation to buy them, and nothing in it promises a return. STEEL may lose all of its value.

The vault program has not been audited as of this date, and parameters may change before launch. Do your own research and only use money you can afford to lose.

Sources

- [Shumailov et al., "AI models collapse when trained on recursively generated data", Nature, 24 July 2024](#)
- [Low-background Steel catalogue](#)
- [Raydium: creating a LaunchLab token](#)
- [Raydium: LaunchLab creator fee share](#)
- [Raydium: LaunchLab vesting](#)
- [Raydium: LaunchLab accounts](#)
- [Raydium: protocol fees](#)

- [Raydium: pool fees](#)
- [Raydium: Burn & Earn](#)
- [Coinbase: SOL price](#), 10 October 2026