3D Printing Powder Usage

How-to guide: what the workbook does, how to use it and what every number means. mfgcalcs.com

3D Printing Powder Usage

Plan and log the powder every SLS, MJF, binder jet or metal powder bed build needs, cost it per part, and see which powders will run short of stock.

For: Additive manufacturing engineers, machine operators, service bureau managers and buyers who plan builds and order powder.

Version 1.0.0 · updated 11 November 2026

Quick start

1. On Setup, type your lab and currency, list your machines, and list your powders with their price per kg and the stock on hand.
2. On Builds, add one row per build: date, build ID, machine, material, build quantity, powder per part and your recovery efficiency for that powder.
3. Fix anything the Check column names.
4. Open the Dashboard: powder needed against stock by material, powder cost per part by build and the recovery loss.

What is in the workbook

Start Here	Read this first: what the workbook does and how to use it.
Setup	Lab and currency, the machines, and the powders with their price per kg and stock on hand.
Builds	One row per build: parts, powder per part and recovery in; powder required, loss and cost per part out.
Dashboard	Powder needed against stock by material, powder cost per part by build, and the recovery loss.
Method	How every number is calculated, with assumptions, limits and sources.
Verify	Self-check: the workbook's formulas recomputed on fixed inputs against an independent reference.

What each number means

Quantity	How it is calculated	Units
Net powder	Build quantity x powder per part.	kg
Powder required	Net powder / recovery efficiency.	kg
Recovery loss	Powder required - net powder.	kg
Powder cost	Powder required x the powder's price (Setup).	currency
Cost per part	Powder cost / build quantity.	currency/part

Quantity	How it is calculated	Units
Required by powder	Sum of powder required over the builds of that powder.	kg
Stock status	Under capacity at 90% of the stock or less; Near capacity up to 100%; Over capacity above it.	-

Assumptions, limitations, sources and the self-check (the Verify sheet, which recomputes the workbook's formulas on fixed test inputs) are in the workbook. The last page shows the Dashboard with the example data for Corvid Additive, a fictional business.

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Engineering estimates for planning and improvement work. Verify the results against your own process, data and standards before you rely on them.

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Powder needed against stock by material, powder cost per part by build, and the recovery loss.

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Corvid Additive (example): 12 builds, 1,356 parts. Powder in kg, money in USD.

POWDER REQUIRED (KG)	POWDER COST (USD)	RECOVERY AND HANDLING LOSS (KG)	POWDERS SHORT OF STOCK
120.6	**11,526**	**36.3**	**1**
All builds, losses included	Per part: 8.50	Required - net powder	Plan needs more than the stock

Powder required against stock (kg)



Powder cost per part by build

