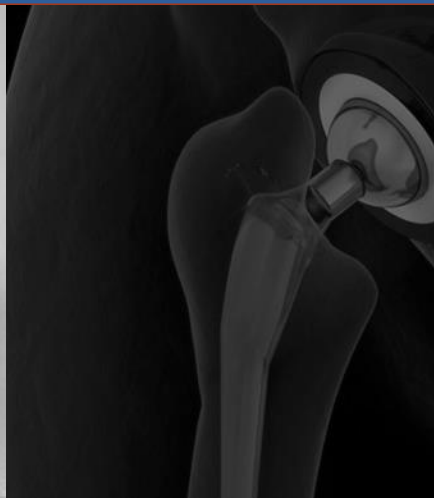
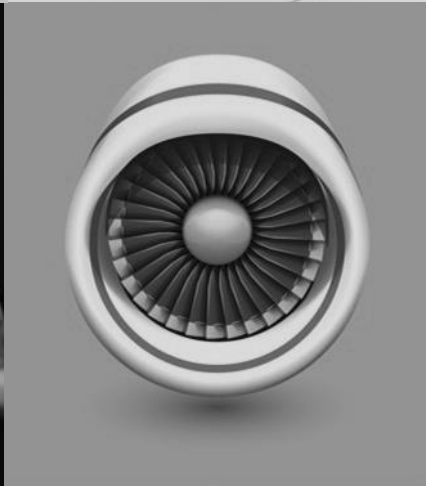


6K ADDITIVE

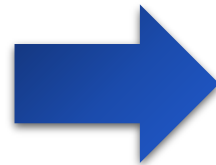
RM Forum
Settembre 2024



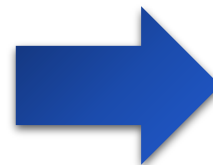
Powder Traceability is Possible for Recycled Materials

- Powder traceability is a crucial quality requirement for industries such as medical implant manufacturing
- Misconceptions exist that recycled materials compromise traceability, thereby product quality and safety
- The FDA allows for the reuse of materials for medical devices printed with AM with proper controls
- Today's largest medical implant suppliers have embraced used and recycled powder while placing high demands that the upcycled powder meets their stringent qualification

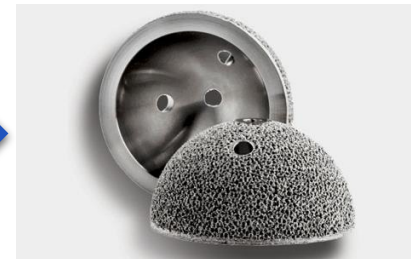
From traceable revert



To Powder



To Part

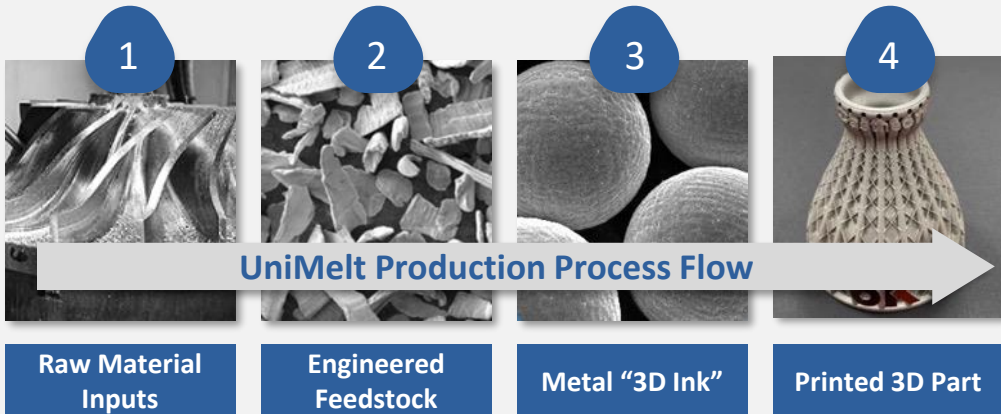


- ✓ *Circular economy*
- ✓ *Secure supply chain*
- ✓ *Lower powder costs*

24/7 HIGH VOLUME PRODUCTION



METAL POWDERS & 3D PRINTED SOLUTIONS



World's only premium metal 3D powders from sustainably-sourced feedstocks

Seasoned Additive Executives



Frank Roberts
Group President



Jonathan Wolak
CFO



Eric Martin
COO



Jamie Perozzi
VP Technology

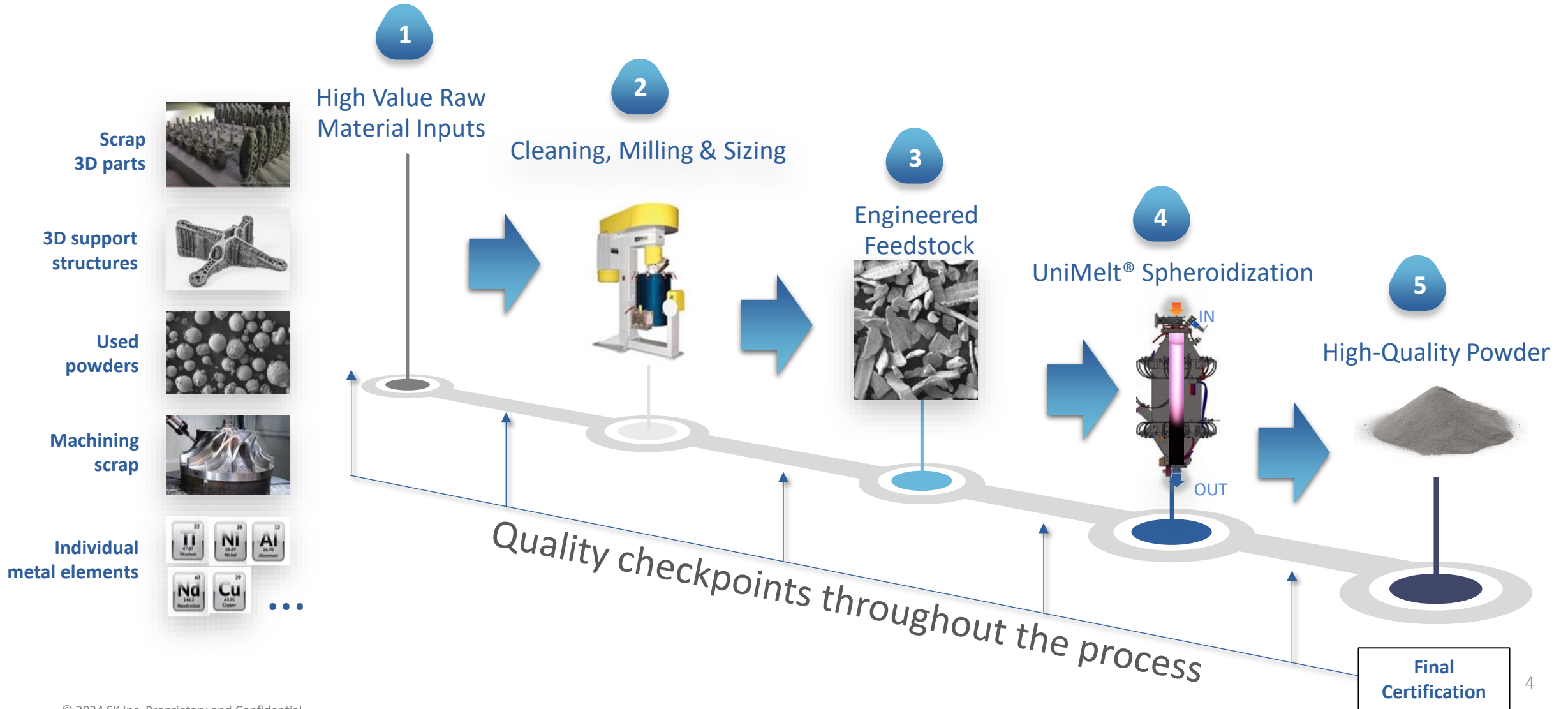


Adrian Chaffins
VP Supply Chain



- 24/7 production in ISO9001 certified facility & process
- Portfolio of products addressing all key markets
- 91% lower CO₂ footprint versus competitive process
- Yields exceeding 90%, utilizations approaching 70%
- Working with the world's top 3 OEMs

6K Additive Powder Production Process



UniMelt® Plasma

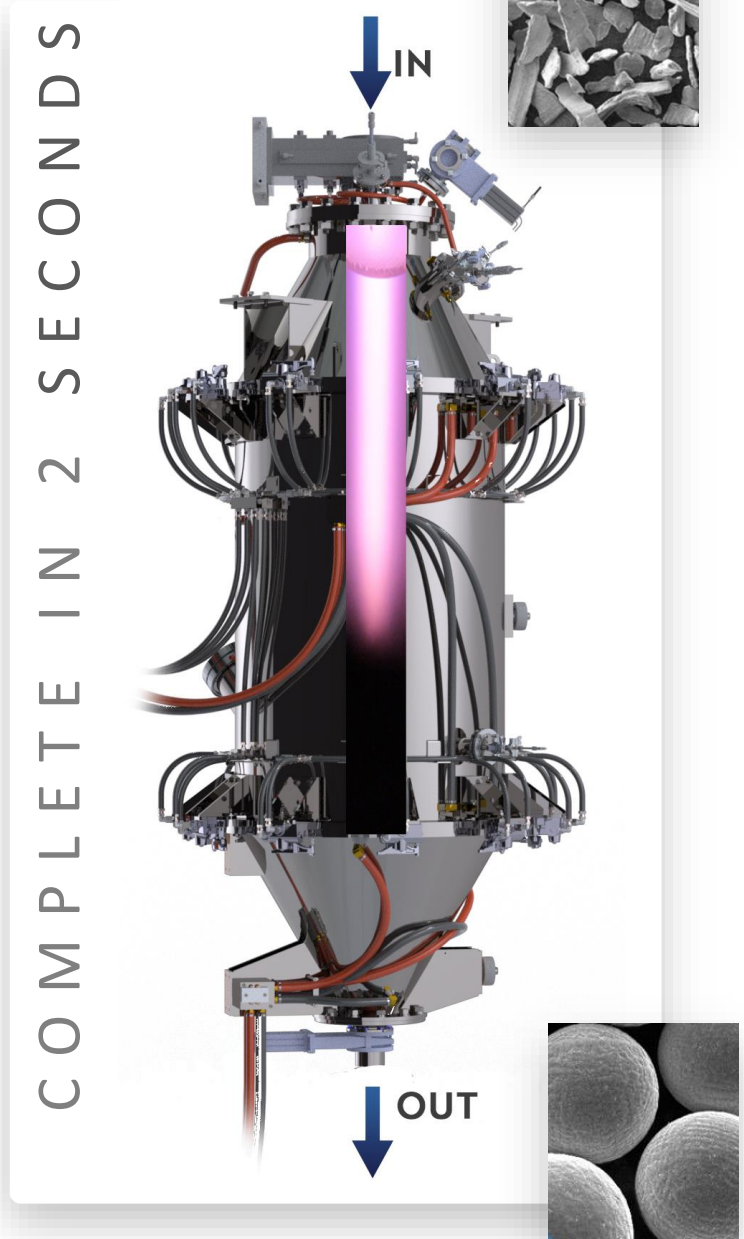
6K
ADDITIVE

Up to **100** Ton per
Year per Machine

Up to **6000K**
Temperature

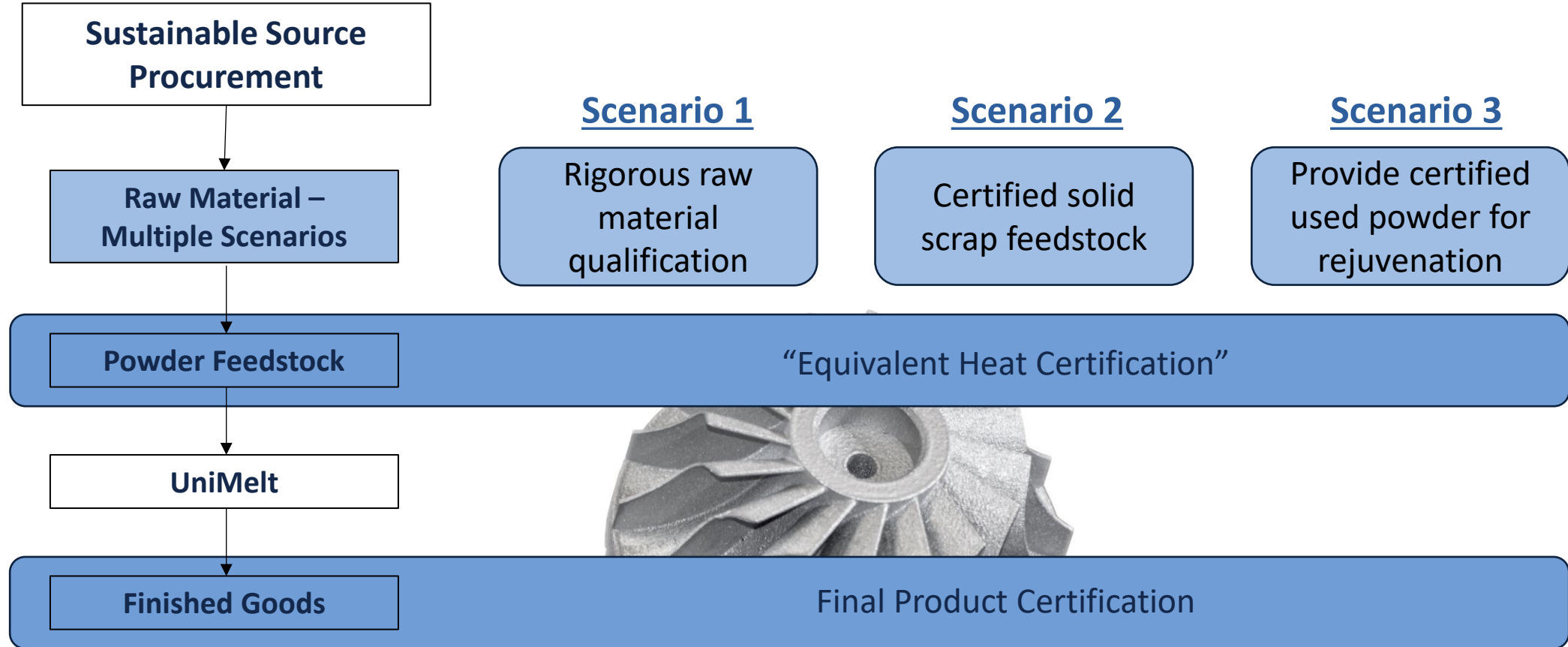
~95%
Efficiency

**Modular &
Scalable**
Technology



Material Traceability Scenarios Based on Raw Material

Process Steps



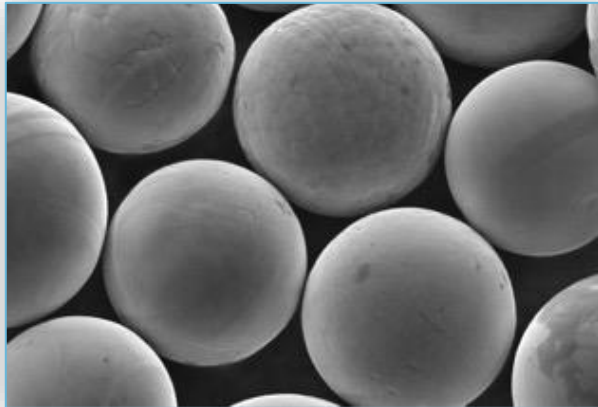
Scenario 2 - Recycling solid waste streams into premium powders

Certified Ti64 Scrap

BEFORE



AFTER

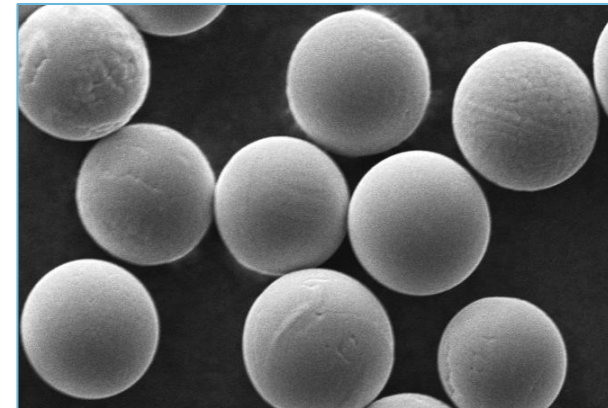


Certified Ti64 Chips

BEFORE



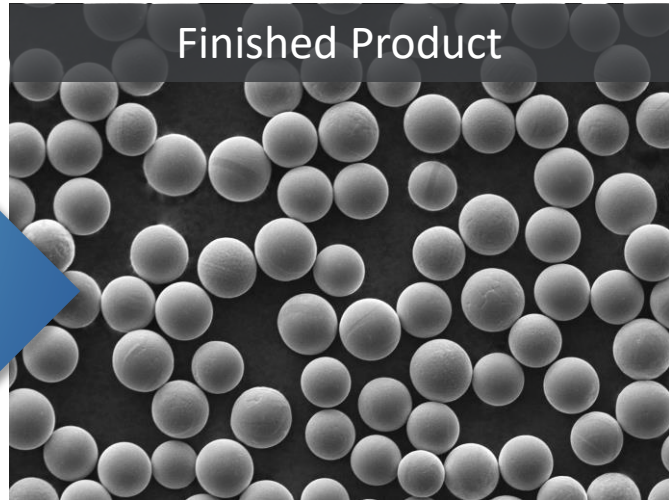
AFTER



Scenario 3 - Rejuvenation -Ti64

Grade 5 & 23 production possible from used powder

CURRENTLY NOT POSSIBLE BY ANY OTHER COMPANY



Used Powder:

- Agglomeration of powder (satellites)
- Increase in Oxygen (>1300 PPM)
- Flow: None
- No current upcycle outlet
 - Currently landfilled

Certified Ti6-4 Grade 23 Powder:

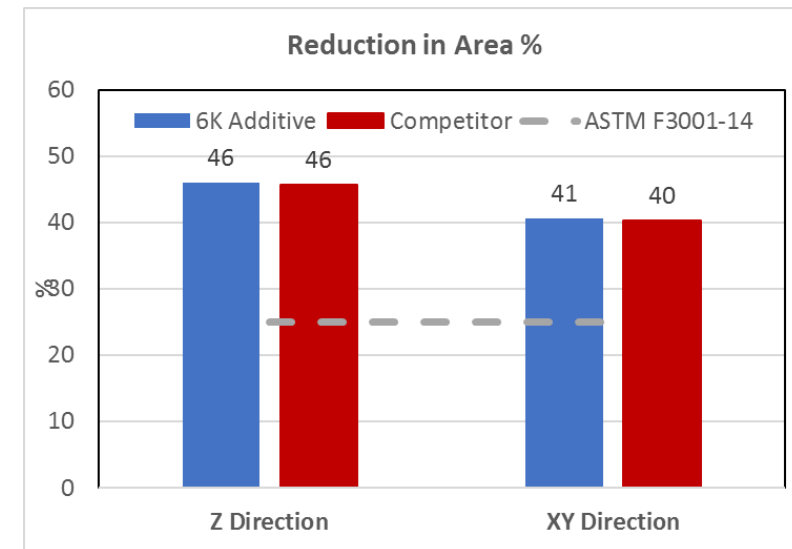
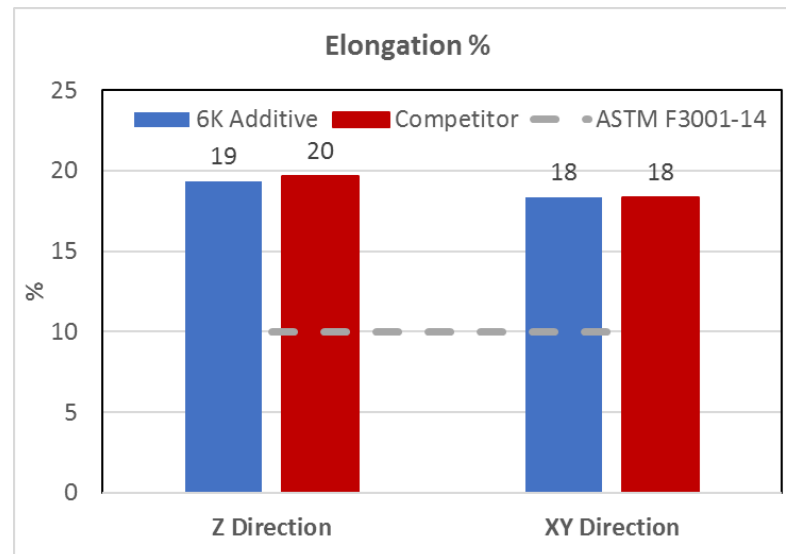
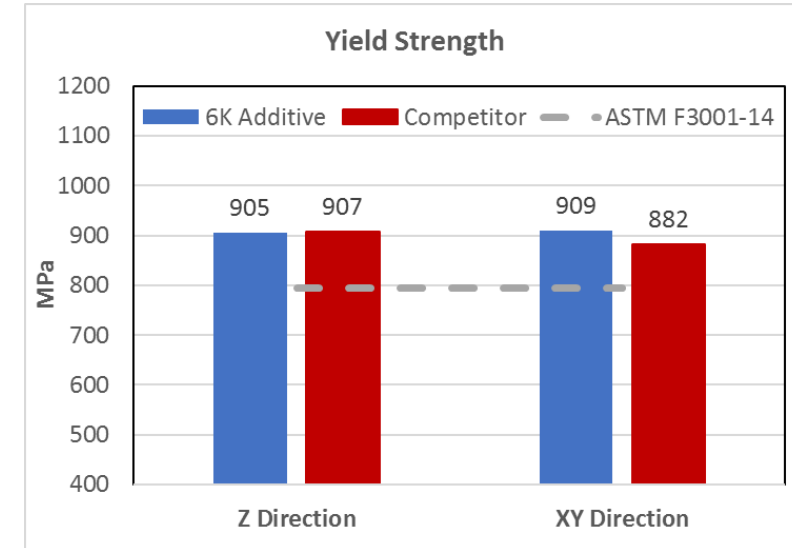
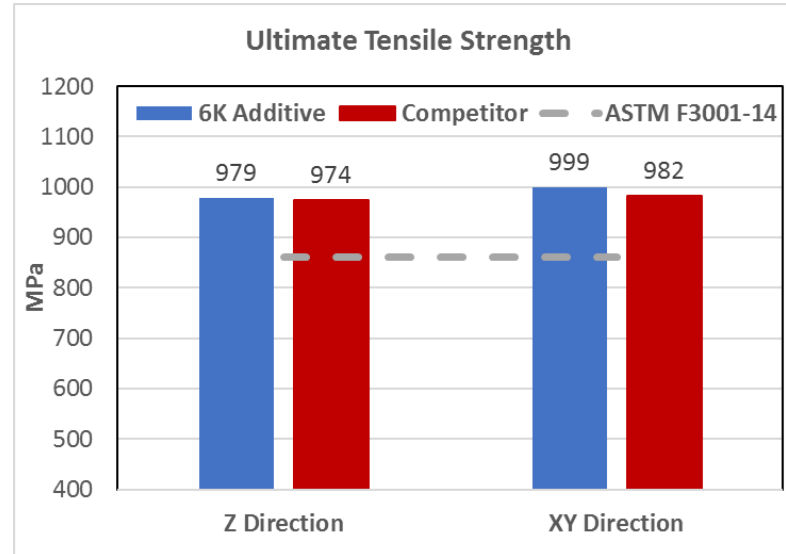
- Meets industry specifications
- Ultra-low oxygen (<800ppm)
- Flow: 24s
- Print Results
 - Exceeds ASTM requirements
 - Comparable w/competition

CHEMICAL ANALYSIS			
Element		Unit	Result
Ti		wt%	Bal.
Al		wt%	6.1
V		wt%	3.87
Fe		wt%	0.2
C		wt%	0.006
S		wt%	<0.005
O		wt%	0.069
N		wt%	0.023
H		wt%	<0.005

Ti64 Print Data at Room Temperature

Print Information and Conditions

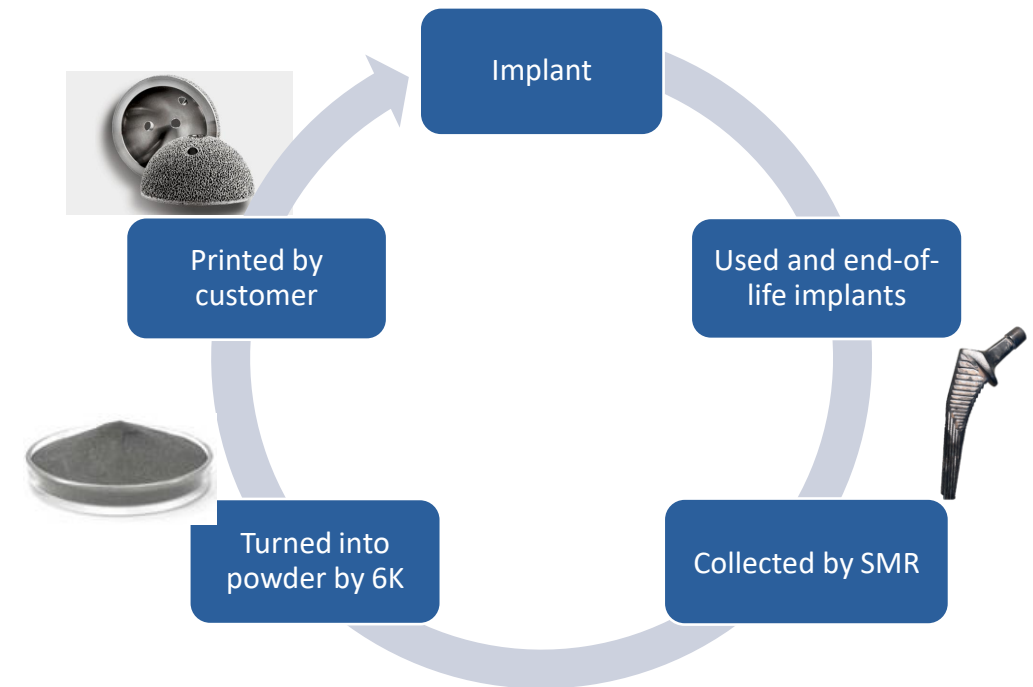
- **AM Machine**
Concept Laser M2
- **Heat Treat**
HIP-Hot Isostatically Pressed
- **Specimen Condition**
Fully machined
- **Competitor Data**
Internally generated



The Biomedical Project: Fully Traceable Raw Material

Objective – A world first, joint development of implants made from upcycled medical material revert

1. **SMR** Surgical Metal Recycling Collects/aggregates large quantities of traceable used and end-of-life implants
2. **6K** ADDITIVE Cleans, crushes, & spheroidizes the implants into premium quality powder for AM applications
3. **Additive Manufacturer** Approves the powder and additive manufactures new implants



The Biomedical Project: Fully Traceable Raw Material

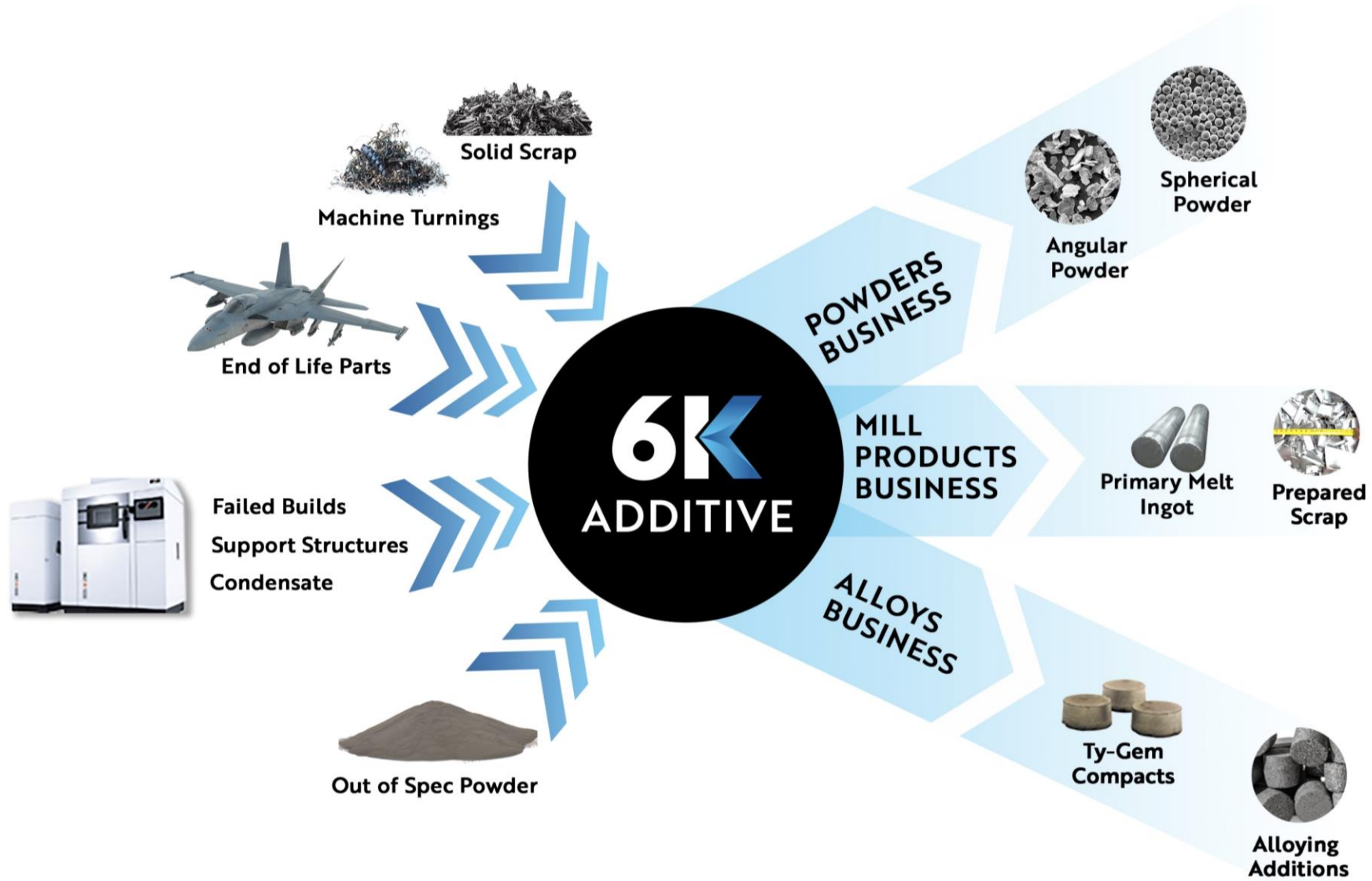


Sources	Used powders	Solids	Used implants	Scrap parts
AM Manufacturers	X	X		X
Hospital			X	X
Crematorium			X	

- AM manufacturers and 6K Additive are collecting the AM used powders, solids and scrap parts
- SMR is working with hospitals and crematoriums to collect the end-of-life parts
- 6K Additive and SMR are finalizing the proof of concept for turning end-of-life parts into premium powders

Managing All Revert Streams

Upcycling scrap to serve both additive and subtractive industries



Premium Recycled Powder Benefits the Planet & The Bottom Line

“

By recycling our used powder with 6K Additive we have been able to drive down our contribution costs for material by 15%, which in turn drives down costs for the customer and our operating cost. What started as an exercise in reducing our environmental impact, has also reduce our costs and exceeded our expectations in quality and performance. We'd recommend 6K Additive to anyone.”



Kevin Engel

Director of Additive Manufacturing and Metrology Operations

INCHEMA 3D
ADDING TO THE FUTURE