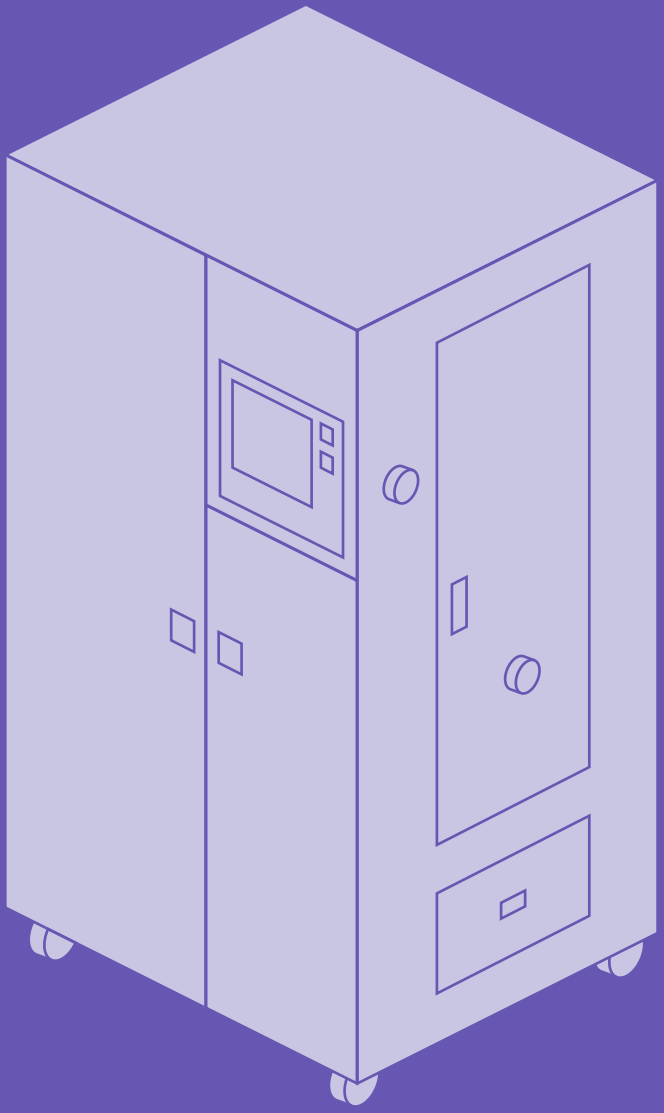
3DPro® **PrintPure**

ADDITIVE MANUFACTURING



NIPPON GASES

Introduction

In an additively manufactured component, even small amounts of absorbed oxygen and absorbed moisture can increase the risk of premature material fatigue. Possible consequences for the end user would be high costs due to premature component failure. The primary reason of the increase in moisture and oxygen content in the final component is the lack of a precise and consistently low controlled gas atmosphere within the building chamber.

Taiyo Nippon Sanso, the Japanese company of Nippon Sanso Holdings Corporation and sister company of Nippon Gases,has therefore developed the new, innovative 3DPro® **PrintPure**. Using advanced Nanochem-purifier technology, moisture and oxygen impurities are actively adsorbed during the building process and filtered out down to a few ppm. By creating a reproducible, high-purity and precisely adjustable atmosphere within the building chamber, moisture and oxygen absorption into the component can be significantly reduced and the mechanical component properties noticeably optimised.

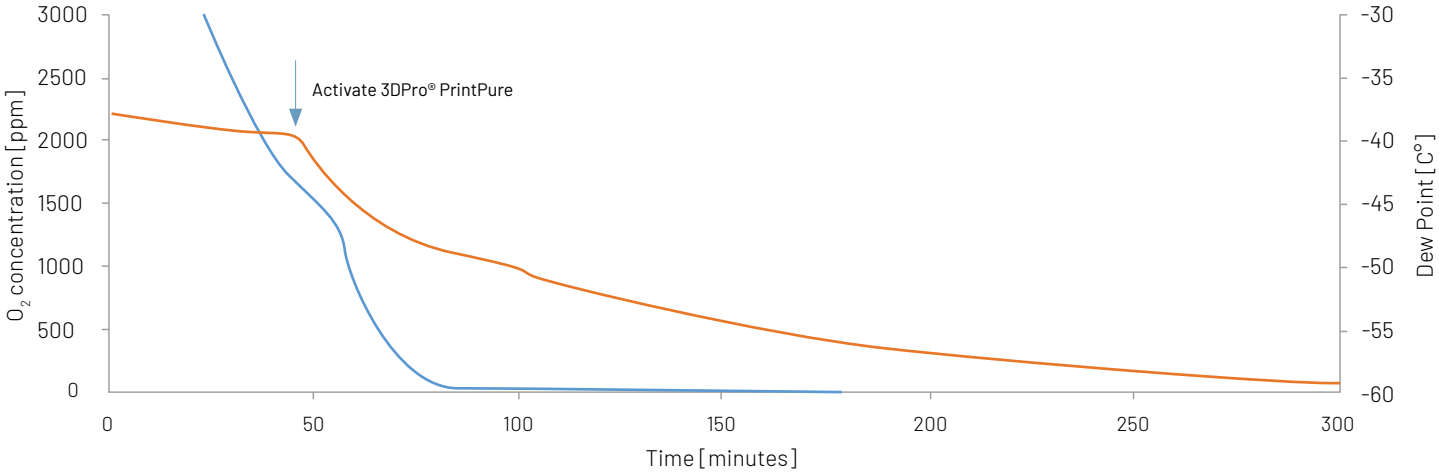
The use of purifier technology also shortens the inerting time at the start of the powder bed fusion process, improving the customer's productivity while reducing gas consumption.

Performance and data test

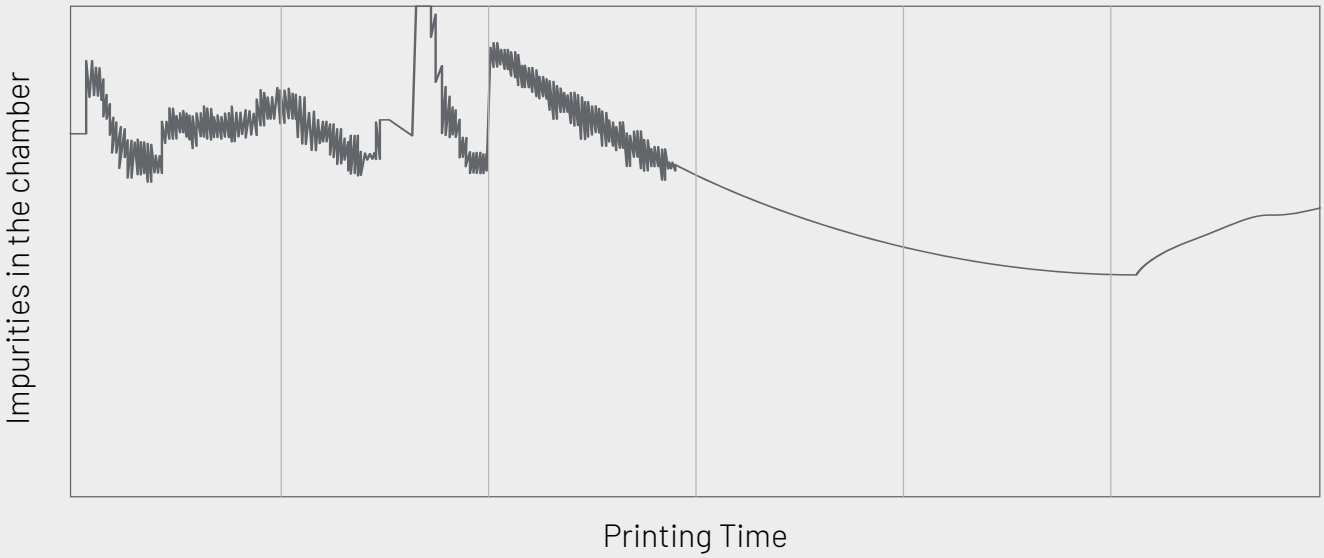
Oxygen concentration:
1000ppm ⟶ less than 1 ppm*

Dew point:
DP-35 deg.C (15400ppm) ⟶ DP-50 deg.C (64ppm)*

***Reference values dependent on more variables.**

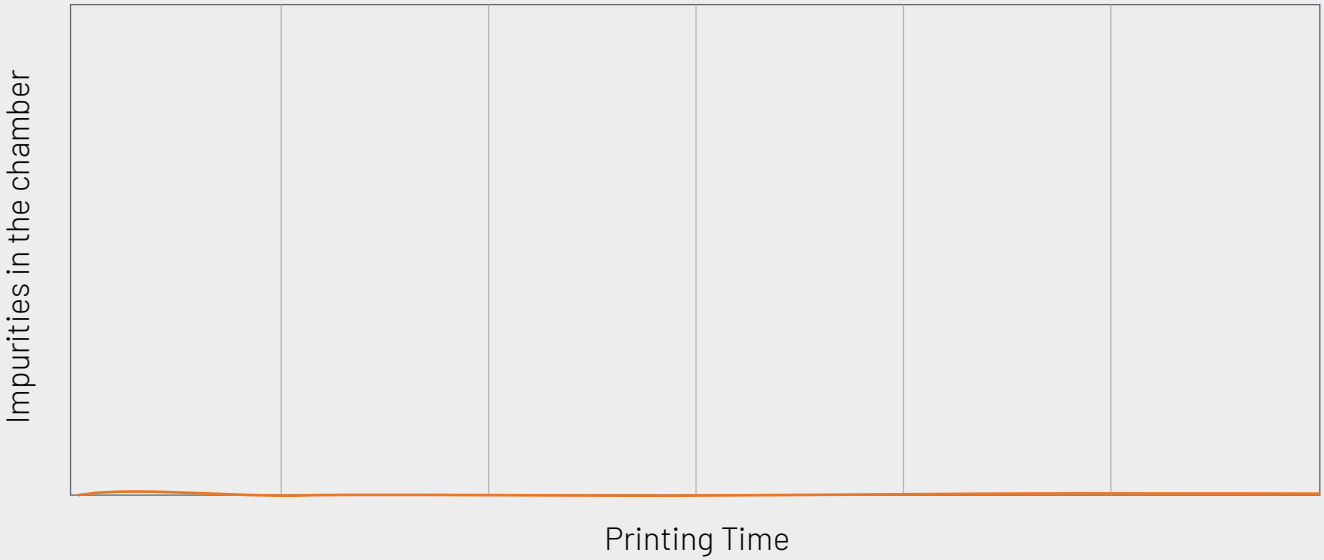


Typical Data



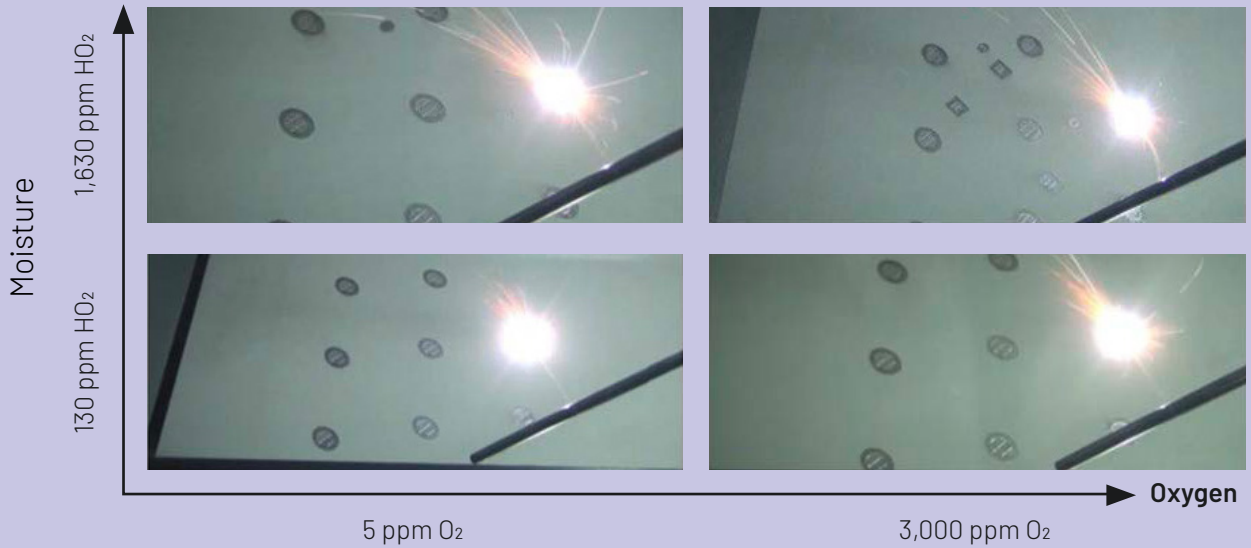
= 1,000 and = 1,200 both left aligned the same way and blank between number an ppm

With 3DPro® PrintPure



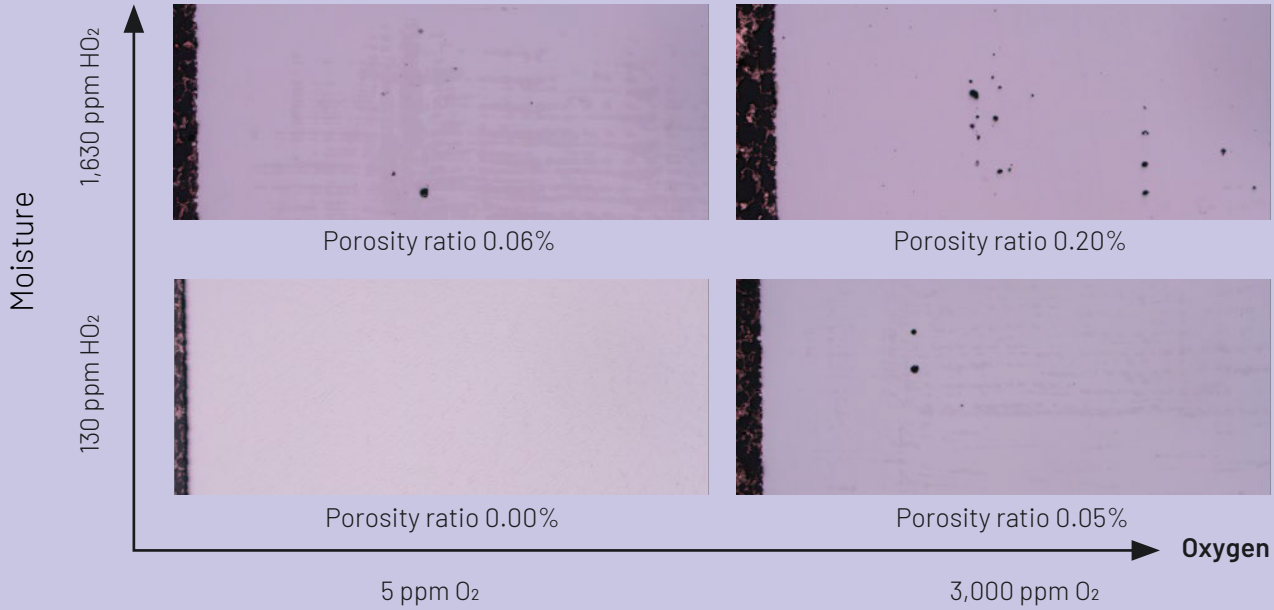
Can maintain extremely low ppm level

Effect of Moisture/Oxygen



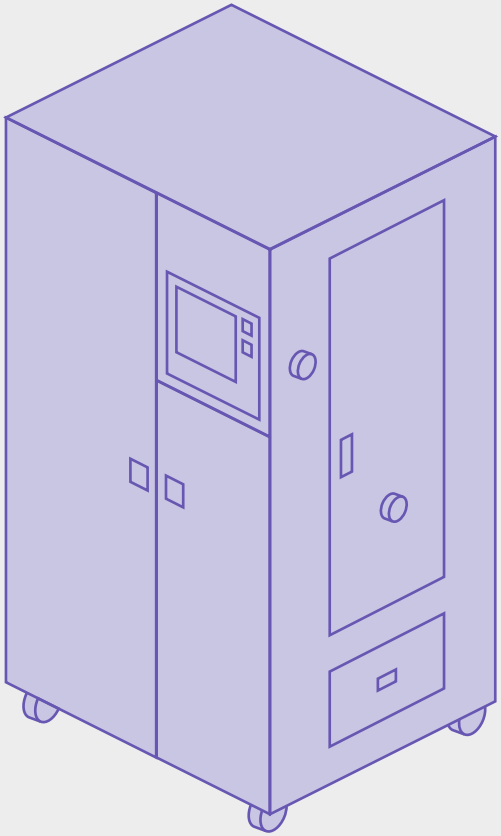
Test Results at Taiyo Nippon Sanso Corporation (TNSC) Yamanashi

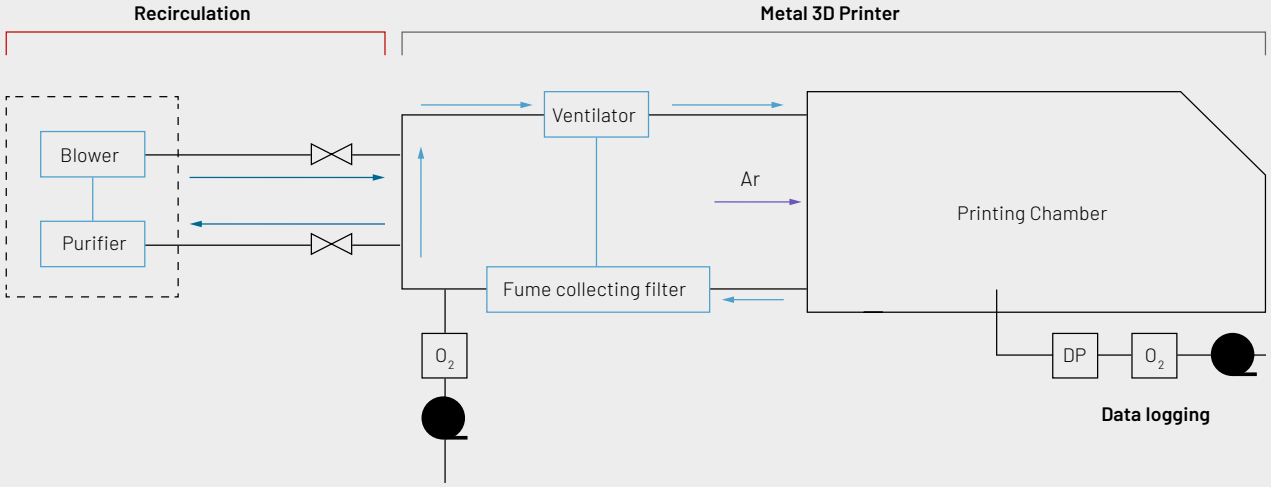
- Metal: Ti64
- Concept Laser M_2



Product specifications

	3DPro® **PrintPure**
Gases	Not available for flammable, inflammable, toxic and corrosive gases.
HMI	8.4 inch color touch panel
Oxygen Sensor	Type: Zirconia Transmitter Meas. Range: 0 to 25% O_2
Moisture Sensor	Type: Capacitive Meas. Range: -110 to 20 deg. C DP
Dimension	1,000 x 1,030 x 2,010mm (Approx. WxHxD)
Material & Color	Steel, SUS, Light gray
Regeneration Gas	Hydrogen / Argon mix gas
European Compliance	Machine Directive 2006/42/EC EMC Directive 2004/108/EC
Adsorption numerator	1. Oxygen and Moisture 2. Moisture only





info@nippongases.com