

Introducing MAP SPACE COATINGS

April 2025

map-coatings.com



Contents

01

CORPORATE POSITIONING P.3

02

VALUE PROPOSITION P.7

03

CUSTOMER BENEFITS P.18 04

CUSTOMER REFERENCES P.20 05





CORPORATE POSITIONING P.3



VALUE PROPOSITION P.7



CUSTOMER BENEFITS <u>P.18</u>



CUSTOMER REFERENCES P.20





Our company's DNA in a nutshell





OUR CORE BUSINESS

 Develop, manufacture and apply high-performance surface coatings on our customers' equipment



OUR MISSION

- Securing our customers' missions...
- ...through a combination of robust and qualified products, solutions and services



OUR PLAYGROUND

- Space
- Aeronautics

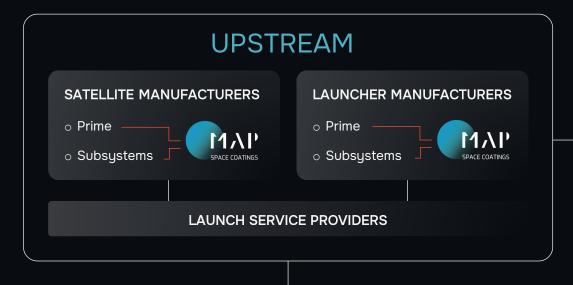


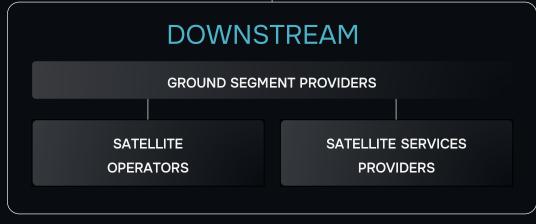
OUR CUSTOMERS

- Satellite manufacturers and related equipment providers
- Launch vehicle manufacturers and related equipment providers
- Aircraft manufacturers and related equipment providers



Where we stand along the space value chain







- R&D AND REGULATORY FLOWS
- BUSINESS FLOWS



Our company's history: A 40-year journey

1988

Manufacture of antistatic coatings for the Ariane 4 launcher



Integration of the ESA working group on REACH issues

2013

EN9100 certification grant

2020

CNES SME label grant

2024

General management and strategy overhaul





















1986

Creation of the MAP group of companies

1992

The aeronautic department leaves the MAP group and becomes Mapaero

2005

Creation of the company's silicones department

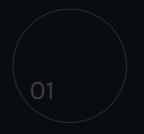
2019

CNES know-how accreditation

2021

Relocation, new visual identity and new logo

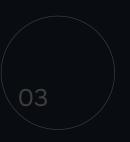




CORPORATE POSITIONING P.3

02

VALUE PROPOSITION P.7



CUSTOMER BENEFITS <u>P.18</u>



CUSTOMER REFERENCES <u>P.20</u>





Your strategic business partner for space coatings



> PRODUCTION



> APPLICATION



> SOLUTIONS



Securing your satellite mission

ENVIRONMENTAL CONSTRAINTS

- o Thermal cycles (-200°C / 200°C)
- Vacuum
- Atomic oxygen
- o Solar radiation (UV, e-, protons)
- Heat generated by spacecraft equipment
- o Heat reflected by the Earth
- o Infrared radiation from the Earth

Thermal effects Pollution effects <u> Chemical effects</u> Electrical effects

OUR SOLUTIONS

- Black thermal control coatings
- Grey thermal control coatings
- o White thermal control coatings
- ATOX control coatings
- Adhesives
- Lubricants
- Conformal coatings

WITHOUT PROTECTION

- Lowered in-orbit lifetime
- Complete/partial mission failure risk
- Cost impact

WITH PROTECTION

- ✓ Interior and exterior equipment made safe
- Mission secured



Our products for satellites

1 Black thermal control coatings

> Hot thermal control coatings → Internal satellite walls. electronics boxes, waveguides, optical baffles

AQ-PU1 AQ-PUK PU1 PUK **PNC PNAS EPOX BLACK ESD** HT1607

2 Grey thermal control coatings

> Low emissivity equal to absorptivity

RM27

→ Satellite's interior

3 White thermal control coatings

> Cold thermal control coatings for external satellite application → Antennas, waveguides,

baffles, satellite's back face

SG121FD SG122FD SCK5N PCBE **PSBN**

4 ATOX control coatings

> Atomic oxygen protection → External Kapton part, satellite's back face

MAP[®] ATOX K MAP[®] ATOX41B MAP[®] ATOX 41BUV Adhesives

Thermal and/or electric conductive adhesives → Optical solar reflectors, solar cells, electronic boxes

MAPSIL[®] QS1123 ThixoB **QS1123 ThixoB UV EA83 TA77 TA66 ELEC LD**

6 Lubricants

Low outgassing lubricants

→ Bearings, inertial wheels, solar array deployment systems MAPLUB[®] PF100c & PF101c SH100c & SH101c

7 Conformal coatings

Protective silicone varnish

213B 213 BSP → Printed circuit boards 213 BUV 214 BV

MAPSIL[®]

213

QS1123

10



Securing your launcher mission

ENVIRONMENTAL CONSTRAINTS

- Firing conditions
- Vibrations
- Thermal flow
- Electrostatic flow
- Thermal shock
- Partial vacuum



OUR SOLUTIONS

- White antistatic silicone mastic
- Thermal protection coatings
- High conductive protection coatings
- Grey thermal control coatings
- o White PU-based antistatic coatings
- High conductive water-based coatings

WITHOUT PROTECTION

- Complete/partial launch failure risk
- Cost impact

WITH PROTECTION

- Mission secured before launch
- ☑ Mission secured during launch



Our products for launchers

1 White antistatic silicone mastic

> White conductive and thermal control → Head of solid rocket, booster

MASTIC Silicone AS MAPSIL® AS

Thermal protection coatings

MAPSIL CORK

High temperature protection with law density and excellent metallic substrate adhesion

→ Fairing, head of solid rocket, booster

High conductive protection coatings

> Electrically lightning conductive

→ Base and top coat motor nozzle

MAPELEC SS02 MAPSIL® CEPT



Grey thermal control coatings

> Low emissivity equal to absorptivity

→ Interior head of solid rocket

5 White PU-based antistatic coatings

> White antistatic, anti-corrosion, reusable water-based coating

→ Fairing, cryogenic part, solid rocket, booster

MAP AQ Static

RM27

MAP® AQ APPRET

MAP AQ Launcher

High conductive water-based coatings

MAPELEC® AQBSS-1

Electrically high conductive silver based

→ Base coat between fairing and solid rocket

12



Securing your aircraft mission



- Air ionization
- o Storms
- Cloud solid particles
- o Air rubbing
- o Electromagnetic fields



WITHOUT PROTECTION

- System damage
- Distorted values

WITH PROTECTION

oximes Well-functioning measuring devices



Our products for aircraft

1 PU-based antistatic coatings

> White or green base coating fully transparent to radio signal
>
> → Aircraft nose, drift and plane



2 PU-based magnetic MAPELEC® AQBCA-1 shielding coatings MAPELEC® AQBGA-1010

Coating to evacuate electrostatic charges

→ Electronic boxes



Application





Solutions

PRODUCT DEVELOPMENT

- Projects performed in collaboration with both public (CNES, ESA ...) and private partners
- On-going R&T projects:

 - Water-based sustainable coatings
 - Extended lifespan coatings for harsh space environment
- Custom packaging

CHARACTERIZATION

- o Thermo-optical analysis:
 - Solar absorbance
 - ✓ Infrared emissivity
- o Thermal analysis:
 - ☑ Thermal gravimetry analysis
 - Differential scanning calorimetry analysis
- Mechanical analysis:
 - ✓ Tensile strength
 - Dynamic mechanical
- Laser granulometry analysis

QUALIFICATION

- Compliant with ECSS
- Adherence
- Outgassing properties
- Thermal cycling ageing (atmospheric pressure and vacuum)
- o Solar radiation (UV, e-, protons)
- Atomic Oxygen
- o Qualification report



Value proposition wrap-up: Integrated service offering under one roof



SATELLITES

Products

White thermal control, black thermal control, adhesives, lubricants

Application

Coatings application on satellite pieces

Solutions

Delta qualification, hand kit repair, syringe conditioning, product innovation



LAUNCHERS

Products

Antistatic protection, conductive coatings

Application

Coatings application on launcher pieces

Solutions

Delta qualification, product innovation



AIRCRAFT

Products

Antistatic protection, base coating

Application

Coatings application on aircraft pieces

Solutions

Product innovation











CORPORATE POSITIONING P.3



VALUE PROPOSITION P.7



CUSTOMER BENEFITS P.18



CUSTOMER REFERENCES
P.20





What our customers can expect from us



> PRODUCTION

- Access to a complete product range (70 references as of now)
- Robust conception leveraging both strong internal raw material design and manufacturing capabilities
- 40-year flight heritage
- Space qualification in compliance with CNES/ECSS standards
- o REACH-compliant
- o ITAR-free
- o EN 9100 / ISO 9001-2015 certifications
- o Environmental responsibility through EcoVadis label

> APPLICATION

- Over 100,000 pieces coated since 1986 (i.e. 3,000 on average per year)
- Specific application service accreditation (ASF CNES) since 2019
- O CNES SME label agreement since 2020





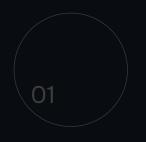




> SOLUTIONS

- Customized services that meet customers' specific requirements and allow altogether optimal performance, longevity and productivity increase
- Packaging
- Training





CORPORATE POSITIONING P.4



VALUE PROPOSITION P.7



CUSTOMER BENEFITS <u>P.18</u>



CUSTOMER REFERENCES P.20





They trust us

































































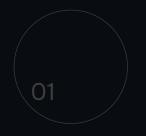












CORPORATE POSITIONING P.3



VALUE PROPOSITION P.7



CUSTOMER BENEFITS P.18



CUSTOMER REFERENCES
P.20





Management team



Laurent FRANCK
Chief Operations Officer
I.franck@map-coatings.com



Pierre VALENTI
Chief Executive Officer
p.valenti@map-coatings.com



Jean-Pierre PARADISO Chief Commercial Officer jp.paradiso@map-coatings.com



Aurélie LEONARDI
Chief Technical Innovation Officer
a.leonardi@map-coatings.com



A player fully involved in its ecosystem















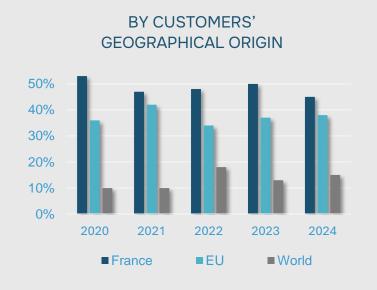


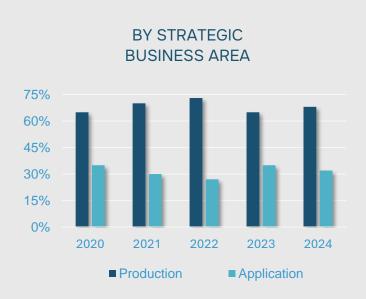
State-of-the-art facilities and equipment





2020-2024 turnover breakdown









Key corporate indicators

21

permanent employees 40

countries

70

product references

4,600 m²

factory

7,5 M€

turnover

11 M€

tools production assets

100,000

pieces coated since 1986

1

single shareholder

450

customers worldwide

Ecovadis

June 2024

Carbometrix

October 2024

39

years since 1986









LAYERING SUCCESSES

ZI de Bonzom, 1 rue Paul Maes, 09270 Mazères FRANCE +33 (0)5 34 01 27 00 I sales@map-coatings.com

