

# ISO 23129:2021-09 (E)

## Space systems - Thermal control coatings for spacecraft - Atomic oxygen protective coatings on polyimide film

---

<b>Contents</b>		<b>Page</b>
Foreword .....		v
Introduction .....		vi
<b>1</b>	<b>Scope .....</b>	<b>1</b>
<b>2</b>	<b>Normative references .....</b>	<b>1</b>
<b>3</b>	<b>Terms, definitions and abbreviated terms .....</b>	<b>1</b>
3.1	Terms and definitions .....	1
3.2	Abbreviated terms .....	3
<b>4</b>	<b>General requirements and recommendations .....</b>	<b>3</b>
4.1	General .....	3
4.2	Visual characteristics .....	4
4.3	Coating thickness .....	4
4.4	Thermo-optical properties .....	4
4.5	Thermal vacuum stability .....	4
4.6	AO resistance .....	4
4.7	UV resistance .....	5
4.8	Radiation resistance .....	5
4.9	Adhesion .....	5
4.10	Volume resistance .....	5
4.11	Surface resistance .....	5
4.12	Secondary electron emission yield .....	5
4.13	Photoelectron emission yield .....	5
4.14	Thermal cycling .....	5
4.15	Repair/Retouch .....	5
4.16	Cleaning .....	5
<b>5</b>	<b>Test methods .....</b>	<b>6</b>
5.1	General .....	6
5.2	Visual inspection .....	6
5.3	Coating thickness .....	6
5.4	Thermo-optical properties .....	6
5.5	Thermal vacuum stability .....	7
5.6	AO resistance .....	7
5.6.1	Product qualification test .....	7
5.6.2	Life estimation test .....	7
5.7	UV resistance .....	7
5.7.1	Product qualification test .....	7
5.7.2	Life estimation test .....	8
5.8	Radiation resistance .....	8
5.8.1	Product qualification test .....	8
5.8.2	Life estimation test .....	8
5.9	Adhesion .....	8
5.10	Volume resistance .....	9
5.11	Surface resistance .....	9
5.12	Secondary electron emission yield .....	9
5.13	Photoelectron emission yield .....	9
5.14	Thermal cycling (influence of temperatures) .....	10

5.15	Repair/Retouch .....	10
5.16	Cleaning .....	10
6	Requirements and recommendations for application .....	10
6.1	Consideration for usage .....	10
6.2	Identification .....	11
6.3	Protectors .....	11
6.4	Packing .....	11
7	Production program of quality assurance .....	11
7.1	General .....	11
7.2	Changes and revisions .....	12
7.3	Record of changes .....	12
Annex A (informative) Types of coatings .....		13
Annex B (informative) General properties of atomic oxygen protective coatings .....		14
Annex C (informative) Coatings selection guideline .....		16
Annex D (informative) Visual characteristics guideline .....		18
Bibliography .....		19