## Colourless anti-reflective coating

ARunic® Water- and oil-repellent, UV filter, highly wear-resistant, anti-static, high-level of hardness, achromatic	2
ARUV UV filter, anti-static, achromatic	4
ARdur® Water- and oil-repellent, anti-static, high-level of hardness, achromatic	6
ARdur® 1 side Anti-static, high-level of hardness, achromatic	8
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Over the past 20 years, ECONORM's anti-reflective coatings have been widely used to provide watch glasses with a high-quality finish. Building on this advanced expertise, ECONORM is now venturing into the production of functional products that go beyond simple anti-reflective coatings.

In 2017, ECONORM developed anti-reflective coating ranges designed to meet new requirements such as colour preservation, resistance to electrostatic effects and even achromatic properties.

## Coloured anti-reflective coating

ARunic Bleu-Violet Water- and oil-repellent, UV filter, highly wear-resistant, anti-static, high-level of hardness, achromatic	14
ARuv Bleu-Violet uv filter, anti-static, achromatic	16
ARdur® Bleu-Violet Water- and oil-repellent, anti-static, high-level of hardness, achromatic	18
ARdur® Bleu-Violet 1 side High-level of hardness, highly wear-resistant, achromatic, anti-static	20
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AR Rouge 1 side	36
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The single- and multi-layer coloured anti-reflective coatings have been renamed in line with the one- and two-sided product ranges.

The old treatment designations – MgF2, SC and IC – are still available and can be used. For more information, please contact the customer service team, who will be happy to answer any questions you may have.



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Contacts

# ARunic®



## Colourless



High level of hardness



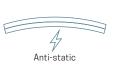
UV filter



Highly wear-resistant

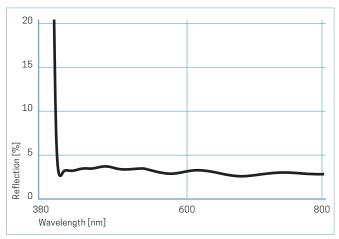


Achromatic









## Product structure



## Properties

Reflection ≤3%	•
UV filter	•
Achromatic	•
Mechanical	
<b>Mechanical</b> Hard	•
	•

Giletilicai	
Water- and oil-repellent	•
Resistant to solvents	•
Low-temperature process	_
Alkali-resistant	_
Resistant to ultrasound	•

Geometric		
	Drilling, opening	_
	Highly convex	•

## Quality tests

Mechanical resistance	Description	Results
Vibratory finishing (chemical-mechanical polishing)	2 hours in a vibrating bowl with cylindrical ceramic abrasives (Al <sub>2</sub> O <sub>3</sub> )	Class 1
Scratch-Test	Test to establish the hardness and adhesiveness of the coating using a diamond tip and variable loads	Market of the second section of the second
Compliance with DIN-ISO 9211-4-02-02	Rapid pull off testing (~1 s) using adhesive tape 12–13 mm wide. Adhesive strength > 9.8 N per 25 mm	Class 0 "OK"

#### Chemical resistance

Chemical resistance		
"Thermal shock" test DIN-ISO 9211-4-04-12	$3\times$ 2-minute cycles in de-mineralised water at $100^{\circ}\text{C}.1$ minute in de-mineralised water at room temperature	Class 0 "OK"
Solubility DIN-ISO 9211-4-04-06	96 hours in a saline solution (45 g/l) at room temperature	Class 0 "OK"
Solvent resistance DIN-ISO 9211-3-12-3 and 9022-87-04-1	1 h hour in acetone (CH <sub>3</sub> COCH <sub>3</sub> ) at room temper- ature	Class 0 "OK"
Resistance to ultrasound	Alkali bath (3% "Galvex") for 2 hours at 60 °C and 50 W of ultrasonic power	Class 1 "Minimal colour change"
Resistance to sweat DIN-ISO 9022-86-02-1	7 days in an artificial sweat solution	Class 0 "OK"

#### Resistance to climatic conditions

	Cold	16 hours at -55 °C	Class 0
	DIN-ISO 9022-10-09-1		"OK"
	Dry heat	6 hours at 85 °C with relative humidity of <40%	Class 0
	DIN-ISO 9022-11-06-1		"OK"

## Cleaning instructions

Please observe the following instructions on how to clean glasses that have been treated with an anti-reflective coating:

- Glasses can be cleaned easily in a neutral solution using ultrasound and at temperatures of up to 60  $^{\circ}\text{C}.$
- If cleaning by hand, we recommend wearing single-use, powder-free latex gloves and using a lint-free cloth.
- Use one of the following approved cleaning alcohols: Ethanol with 5% isopropyl alcohol (F25-A+IPA), Alcosuisse, Bern Ethanol Absolute A 15 0 (02883), Sigma-Aldrich, Buchs SG



## ARUV



## Colourless



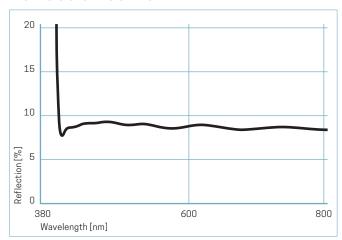
UV filter



Achromatic







## Properties

Reflection ≤3%	_	
UV filter	•	
Achromatic	•	

#### Mechanical

Hard	_
Highly wear-resistant	_
Anti-static	•

#### Chemical

Water- and oil-repellent	_
Resistant to solvents	•
Low-temperature process	_
Alkali-resistant	_
Resistant to ultrasound	•

#### Geometric

Drilling, opening	•
Highly convex	•

### Product structure

Sapphire	
UVic	
UVic ITO	

25 mm

## Quality tests

Mechanical resistance	Description	Results
Vibratory finishing (chemical- mechanical polishing)	2hours in a vibrating bowl with cylindrical ceramic abrasives (Al <sub>2</sub> O <sub>3</sub> )	_
Scratch-Test	Test to establish the hardness and adhesiveness of the coating using a diamond tip and variable loads	_
Compliance with	Rapid pull off testing (~1 s) using adhesive tape	Class 0

"OK"

12-13 mm wide. Adhesive strength > 9.8 N per

#### Chemical resistance

DIN-ISO 9211-4-02-02

"Thermal shock" test	3×2-minute cycles in de-mineralised water at	Class 0
DIN-ISO 9211-4-04-12	100 °C. 1 minute in de-mineralised water at room	"OK"
	temperature	
Solubility	96 hours in a saline solution (45 g/l) at room	_
DIN-ISO 9211-4-04-06	temperature	
Solvent resistance	1 h hour in acetone (CH <sub>3</sub> COCH <sub>3</sub> ) at room temper-	Class 0
DIN-ISO 9211-3-12-3 and	ature	"OK"
9022-87-04-1		
Resistance to ultrasound	Alkali bath (3% "Galvex") for 2 hours at 60 °C and	Class 1
	50 W of ultrasonic power	"Minimal colour change"
Resistance to sweat	7 days in an artificial sweat solution	_
DIN-ISO 9022-86-02-1		

#### Resistance to climatic conditions

Cold DIN-ISO 9022-10-09-1	16 hours at -55 °C	Class 0 "OK"
Dry heat	6 hours at 85 °C with relative humidity of <40%	Class 0
DIN-ISO 9022-11-06-1		"OK"

## Cleaning instructions

- Glasses can be cleaned easily in a neutral solution using ultrasound and at temperatures of up to 60  $^{\circ}\text{C}.$
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# ARdur®



## Colourless



High level of hardness



Highly wear-resistant

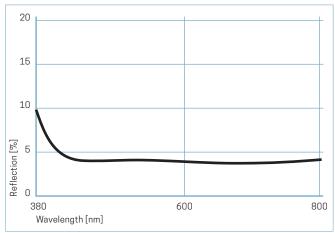


Achromatic









## Product structure

TC SCp	
Sapphire	
SCp ITO	

## Properties

•
•
1
•
•
•

#### Geometric

Alkali-resistant

Resistant to ultrasound

Drilling, opening	_
Highly convex	•

## Quality tests

Mechanical resistance	Description	Results
Vibratory finishing (chemical- mechanical polishing)	2 hours in a vibrating bowl with cylindrical ceramic abrasives (Al <sub>2</sub> O <sub>3</sub> )	Class 1
Scratch-Test	Test to establish the hardness and adhesiveness of the coating using a diamond tip and variable loads	MARKET SUCCESSION SOUTH SOUTH
Compliance with DIN-ISO 9211-4-02-02	Rapid pull off testing (~1 s) using adhesive tape 12-13 mm wide. Adhesive strength > 9.8 N per 25 mm	Class 0 "OK"

#### Chemical resistance

Chemical resistance		
"Thermal shock" test DIN-ISO 9211-4-04-12	$3\times$ 2-minute cycles in de-mineralised water at $100^{\circ}\text{C}.1$ minute in de-mineralised water at room temperature	Class 0 "OK"
Solubility DIN-ISO 9211-4-04-06	96 hours in a saline solution (45 g/l) at room temperature	Class 0 "OK"
Solvent resistance DIN-ISO 9211-3-12-3 and 9022-87-04-1	1 h hour in acetone (CH <sub>3</sub> COCH <sub>3</sub> ) at room temper- ature	Class 0 "OK"
Resistance to ultrasound	Alkali bath (3% "Galvex") for 2 hours at 60 °C and 50 W of ultrasonic power	Class 1 "Minimal colour change"
Resistance to sweat DIN-ISO 9022-86-02-1	7 days in an artificial sweat solution	Class 0 "OK"

#### Resistance to climatic conditions

Cold	16 hours at -55 °C	Class 0
DIN-ISO 9022-10-09-1		"OK"
Dry heat	6 hours at 85 °C with relative humidity of <40%	Class 0
DIN-ISO 9022-11-06-1		"OK"

## Cleaning instructions

Please observe the following instructions on how to clean glasses that have been treated with an anti-reflective coating:

- Glasses can be cleaned easily in a neutral solution using ultrasound and at temperatures of up to 60  $^{\circ}\text{C}.$
- If cleaning by hand, we recommend wearing single-use, powder-free latex gloves and using a lint-free cloth.
- Use one of the following approved cleaning alcohols: Ethanol with 5% isopropyl alcohol (F25-A+IPA), Alcosuisse, Bern Ethanol Absolute A 15 0 (02883), Sigma-Aldrich, Buchs SG



# ARdur® 1 side



## Colourless



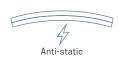
High level of hardness



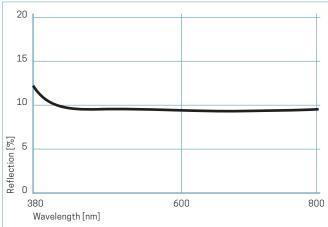
Highly wear-resistant



Achromatic







**Optical** 

Reflection ≤3%	_
UV filter	_
Achromatic	•

#### Mechanical

Properties

Hard	•
Highly wear-resistant	•
Anti-static	•

#### Chemical

Water- and oil-repellent	_
Resistant to solvents	•
Low-temperature process	_
Alkali-resistant	_
Resistant to ultrasound	•

#### Geometric

Drilling, opening	_
Highly convex	•

## Product structure

Sapphire	
SCp ITO	
ITO	

## Quality tests

Mechanicai resistance	Description	
Vibratar finishing (shaminal	O hours in a vibrating bowl with aulindrical coromia	

Mechanicariesistance	Description	Results
Vibratory finishing (chemical- mechanical polishing)	2 hours in a vibrating bowl with cylindrical ceramic abrasives (Al <sub>2</sub> O <sub>3</sub> )	_
Scratch-Test	Test to establish the hardness and adhesiveness of the coating using a diamond tip and variable loads	_
Compliance with DIN-ISO 9211-4-02-02	Rapid pull off testing (~1 s) using adhesive tape 12-13 mm wide. Adhesive strength > 9.8 N per 25 mm	Class 0 "OK"

#### Chemical resistance

"Thermal shock" test DIN-ISO 9211-4-04-12	3×2-minute cycles in de-mineralised water at 100 °C. 1 minute in de-mineralised water at room temperature	Class 0 "OK"
Solubility DIN-ISO 9211-4-04-06	96 hours in a saline solution (45 g/l) at room temperature	_
Solvent resistance DIN-ISO 9211-3-12-3 and 9022-87-04-1	1 h hour in acetone (CH <sub>3</sub> COCH <sub>3</sub> ) at room temper- ature	Class 0 "OK"
Resistance to ultrasound	Alkali bath (3% "Galvex") for 2 hours at 60 °C and 50 W of ultrasonic power	Class 1 "Minimal colour change"
Resistance to sweat DIN-ISO 9022-86-02-1	7 days in an artificial sweat solution	_

#### Resistance to climatic conditions

Cold DIN-ISO 9022-10-09-1	16 hours at -55 °C	Class 0 "OK"
Dry heat	6 hours at 85 °C with relative humidity of <40%	Class 0
DIN-ISO 9022-11-06-1		"OK"

## Cleaning instructions

- Glasses can be cleaned easily in a neutral solution using ultrasound and at temperatures of up to 60  $^{\circ}\text{C}.$
- If cleaning by hand, we recommend wearing single-use, powder-free latex gloves and using a lint-free cloth.
- Use one of the following approved cleaning alcohols: Ethanol with 5% isopropyl alcohol (F25-A+IPA), Alcosuisse, Bern Ethanol Absolute A 15 0 (02883), Sigma-Aldrich, Buchs SG



# ARcroma®

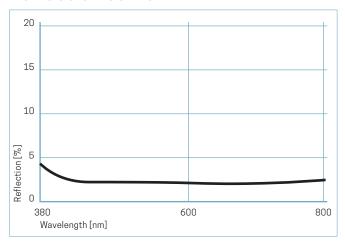


Colourless



Achromatic





## Product structure



## Properties

Optical		
Reflection ≤3%	•	
UV filter	_	
Achromatic	•	
Marchanter		

#### Mechanical

Hard	_
Highly wear-resistant	_
Anti-static	_

#### Chemical

Water- and oil-repellent	_
Resistant to solvents	•
Low-temperature process	_
Alkali-resistant •	
Resistant to ultrasound	•

#### Geometric

Drilling, opening		•
Ì	Highly convex	•

## Quality tests

Mechanical resistance	Description	Results
Vibratory finishing (chemical- mechanical polishing)	2 hours in a vibrating bowl with cylindrical ceramic abrasives (Al <sub>2</sub> O <sub>3</sub> )	Class 2
Scratch-Test	Test to establish the hardness and adhesiveness of the coating using a diamond tip and variable loads	
Compliance with DIN-ISO 9211-4-02-02	Rapid pull off testing (~1 s) using adhesive tape 12-13 mm wide. Adhesive strength > 9.8 N per 25 mm	Class 0 "OK"

#### Chemical resistance

Unemical resistance		
"Thermal shock" test DIN-ISO 9211-4-04-12	3× 2-minute cycles in de-mineralised water at 100 °C. 1 minute in de-mineralised water at room temperature	Class 0 "Effect only visible upon measurement"
Solubility DIN-ISO 9211-4-04-06	96 hours in a saline solution (45 g/l) at room temperature	Class 0 "Effect only visible upon measurement"
Solvent resistance DIN-ISO 9211-3-12-3 and 9022-87-04-1	1 h hour in acetone (CH <sub>3</sub> COCH <sub>3</sub> ) at room temper- ature	Class 0 "OK"
Resistance to ultrasound	Alkali bath (3% "Galvex") for 2 hours at 60 °C and 50 W of ultrasonic power	Class 0 "OK"
Resistance to sweat DIN-ISO 9022-86-02-1	7 days in an artificial sweat solution	Class 0 "Effect only visible upon measurement"

#### Resistance to climatic conditions

Cold DIN-ISO 9022-10-09-1	16 hours at -55 °C	Class 0 "OK"
Dry heat	6 hours at 85 °C with relative humidity of <40%	Class 0
DIN-ISO 9022-11-06-1		"OK"

## Cleaning instructions

- Glasses can be cleaned easily in a neutral solution using ultrasound and at temperatures of up to 60  $^{\circ}\text{C}.$
- If cleaning by hand, we recommend wearing single-use, powder-free latex gloves and using a lint-free cloth.
- Use one of the following approved cleaning alcohols: Ethanol with 5% isopropyl alcohol (F25-A+IPA), Alcosuisse, Bern Ethanol Absolute A 15 0 (02883), Sigma-Aldrich, Buchs SG



# ARcroma® 1 side

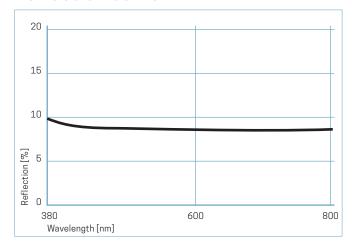


Colourless



Achromatic





## Properties

optical		
Reflection ≤3%	_	
UV filter	_	
Achromatic	•	

#### Mechanical

Hard	_
Highly wear-resistant	_
Anti-static	_

#### Chemical

Water- and oil-repellent	_
Resistant to solvents	•
Low-temperature process	_
Alkali-resistant	•
Resistant to ultrasound	•

#### Geometric

Drilling, opening	•
Highly convex	•

### Product structure

Sapphire	
ICp	

## Quality tests

Mechanical resistance	Description	Results
Vibratory finishing (chemical- mechanical polishing)	2 hours in a vibrating bowl with cylindrical ceramic abrasives (Al <sub>2</sub> O <sub>3</sub> )	
Scratch-Test	Test to establish the hardness and adhesiveness of the coating using a diamond tip and variable loads	_
Compliance with DIN-ISO 9211-4-02-02	Rapid pull off testing (~1 s) using adhesive tape 12–13 mm wide. Adhesive strength > 9.8 N per 25 mm	Class 0 "OK"

#### Chemical resistance

"Thermal shock" test DIN-ISO 9211-4-04-12	$3\times 2$ -minute cycles in de-mineralised water at $100^{\circ}\text{C}$ . 1 minute in de-mineralised water at room temperature	Class 0 "Effect only visible upon measurement"
Solubility DIN-ISO 9211-4-04-06	96 hours in a saline solution (45 g/l) at room temperature	
Solvent resistance DIN-ISO 9211-3-12-3 and 9022-87-04-1	1 h hour in acetone (CH <sub>3</sub> COCH <sub>3</sub> ) at room temper- ature	Class 0 "OK"
Resistance to ultrasound	Alkali bath (3% "Galvex") for 2 hours at 60 °C and 50 W of ultrasonic power	Class 0 "OK"
Resistance to sweat DIN-ISO 9022-86-02-1	7 days in an artificial sweat solution	_

#### Resistance to climatic conditions

Cold DIN-ISO 9022-10-09-1	16 hours at -55 °C	Class 0 "OK"
Dry heat	6 hours at 85 °C with relative humidity of <40%	Class 0
DIN-ISO 9022-11-06-1		"OK"

## Cleaning instructions

- Glasses can be cleaned easily in a neutral solution using ultrasound and at temperatures of up to 60  $^{\circ}\text{C}.$
- If cleaning by hand, we recommend wearing single-use, powder-free latex gloves and using a lint-free cloth.
- Use one of the following approved cleaning alcohols: Ethanol with 5% isopropyl alcohol (F25-A+IPA), Alcosuisse, Bern Ethanol Absolute A 15 0 (02883), Sigma-Aldrich, Buchs SG



## ARunic® Bleu-Violet





High level of hardness



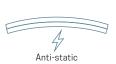
UV filter



Highly wear-resistant

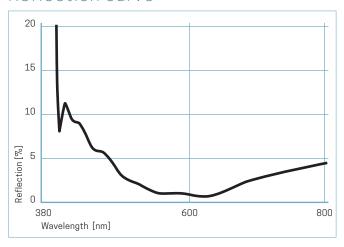


Achromatic









## Product structure



## Properties

Optical		
Reflection ≤3%	•	
UV filter	•	
Achromatic	•	

#### Mechanical Hard Highly wear-resistant Anti-static

#### Chemical

Water- and oil-repellent	•
Resistant to solvents	•
Low-temperature process	_
Alkali-resistant	_
Resistant to ultrasound	•

#### Geometric

Drilling, opening	_
Highly convex	•

## Quality tests

Mechanical resistance	Description	Results
Vibratory finishing (chemical- mechanical polishing)	2hours in a vibrating bowl with cylindrical ceramic abrasives (Al2O3)	Class 1
Scratch-Test	Test to establish the hardness and adhesiveness of the coating using a diamond tip and variable loads	
Compliance with DIN-ISO 9211-4-02-02	Rapid pull off testing (~1 s) using adhesive tape 12–13 mm wide. Adhesive strength > 9.8 N per 25 mm	Class 0 "OK"

#### Chemical resistance

Chemical resistance		
"Thermal shock" test	3×2-minute cycles in de-mineralised water at	Class 0
DIN-ISO 9211-4-04-12	100 °C. 1 minute in de-mineralised water at room	"OK"
	temperature	
Solubility	96 hours in a saline solution (45 g/l) at room	Class 0
DIN-ISO 9211-4-04-06	temperature	"Effect only visible upon measurement"
Solvent resistance	1 h hour in acetone (CH <sub>3</sub> COCH <sub>3</sub> ) at room temper-	Class 0
DIN-ISO 9211-3-12-3 and	ature	"OK"
9022-87-04-1		
Resistance to ultrasound	Alkali bath (3% "Galvex") for 2 hours at 60 °C and	Class 1
	50 W of ultrasonic power	"Minimal colour change"
Resistance to sweat	7 days in an artificial sweat solution	Class 0
DIN-ISO 9022-86-02-1		"OK"

#### Resistance to climatic conditions

Cold DIN-ISO 9022-10-09-1	16 hours at -55 °C	Class 0 "OK"
Dry heat	6 hours at 85 °C with relative humidity of <40%	Class 0
DIN-ISO 9022-11-06-1		"OK"

## Cleaning instructions

- Glasses can be cleaned easily in a neutral solution using ultrasound and at temperatures of up to 60  $^{\circ}\text{C}.$
- If cleaning by hand, we recommend wearing single-use, powder-free latex gloves and using a lint-free cloth.
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## ARuv Bleu-Violet





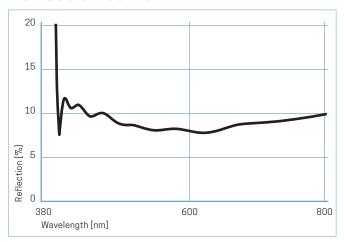




Achromatic







## Properties

Optical	
Reflection ≤3%	_
UV filter	•
Achromatic	•

#### Mechanical

Hard	_
Highly wear-resistant	_
Anti-static	•

#### Chemical

Water- and oil-repellent	_
Resistant to solvents	•
Low-temperature process	_
Alkali-resistant	_
Resistant to ultrasound	•

#### Geometric

Drilling, opening	•
Highly convex	•

### Product structure



## Quality tests

Mechanical resistance	Description	Results
Vibratory finishing (chemical- mechanical polishing)	2 hours in a vibrating bowl with cylindrical ceramic abrasives (Al <sub>2</sub> O <sub>3</sub> )	_
Scratch-Test	Test to establish the hardness and adhesiveness of the coating using a diamond tip and variable loads	_
Compliance with DIN-ISO 9211-4-02-02	Rapid pull off testing (~1 s) using adhesive tape 12–13 mm wide. Adhesive strength > 9.8 N per 25 mm	Class 0 "OK"

#### Chemical resistance

"Thermal shock" test DIN-ISO 9211-4-04-12	3× 2-minute cycles in de-mineralised water at 100 °C. 1 minute in de-mineralised water at room temperature	Class 0 "OK"
Solubility DIN-ISO 9211-4-04-06	96 hours in a saline solution (45 g/l) at room temperature	_
Solvent resistance DIN-ISO 9211-3-12-3 and 9022-87-04-1	1 h hour in acetone (CH <sub>3</sub> COCH <sub>3</sub> ) at room temper- ature	Class 0 "OK"
Resistance to ultrasound	Alkali bath (3% "Galvex") for 2 hours at 60 °C and 50 W of ultrasonic power	Class 1 "Minimal colour change"
Resistance to sweat DIN-ISO 9022-86-02-1	7 days in an artificial sweat solution	_

#### Resistance to climatic conditions

Cold DIN-ISO 9022-10-09-1	16 hours at -55 °C	Class 0 "OK"
Dry heat	6 hours at 85 °C with relative humidity of <40%	Class 0
DIN-ISO 9022-11-06-1		"OK"

## Cleaning instructions

Please observe the following instructions on how to clean glasses that have been treated with an anti-reflective coating:

- Glasses can be cleaned easily in a neutral solution using ultrasound and at temperatures of up to 60  $^{\circ}\text{C}.$
- If cleaning by hand, we recommend wearing single-use, powder-free latex gloves and using a lint-free cloth.
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## ARdur® Bleu-Violet





High level of hardness



Highly wear-resistant

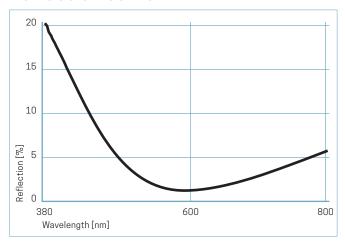


Achromatic









## Product structure



## Properties

Optical		
Reflection ≤3%	_	
UV filter	_	
Achromatic	•	

#### Mechanical Hard Highly wear-resistant Anti-static

#### Chemical

Water- and oil-repellent	•
Resistant to solvents	•
Low-temperature process	_
Alkali-resistant	_
Resistant to ultrasound	•

#### Geometric

Drilling, opening	_
Highly convex	•

## Quality tests

Mechanical resistance	Description	Results
Vibratory finishing (chemical- mechanical polishing)	2 hours in a vibrating bowl with cylindrical ceramic abrasives (Al <sub>2</sub> O <sub>3</sub> )	Class 1
Scratch-Test	Test to establish the hardness and adhesiveness of the coating using a diamond tip and variable loads	
Compliance with DIN-ISO 9211-4-02-02	Rapid pull off testing (~1 s) using adhesive tape 12-13 mm wide. Adhesive strength > 9.8 N per 25 mm	Class 0 "OK"

#### Chemical resistance

Chemical resistance		
"Thermal shock" test DIN-ISO 9211-4-04-12	3× 2-minute cycles in de-mineralised water at 100 °C. 1 minute in de-mineralised water at room temperature	Class 0 "OK"
Solubility DIN-ISO 9211-4-04-06	96 hours in a saline solution (45 g/l) at room temperature	Class 0 "OK"
Solvent resistance DIN-ISO 9211-3-12-3 and 9022-87-04-1	1 h hour in acetone (CH <sub>3</sub> COCH <sub>3</sub> ) at room temper- ature	Class O "OK"
Resistance to ultrasound	Alkali bath (3% "Galvex") for 2 hours at 60 °C and 50 W of ultrasonic power	Class 1 "Minimal colour change"
Resistance to sweat DIN-ISO 9022-86-02-1	7 days in an artificial sweat solution	Class 0 "OK"

#### Resistance to climatic conditions

Cold DIN-ISO 9022-10-09-1	16 hours at -55 °C	Class 0 "OK"
Dry heat	6 hours at 85 °C with relative humidity of <40%	Class 0
DIN-ISO 9022-11-06-1		"OK"

## Cleaning instructions

- Glasses can be cleaned easily in a neutral solution using ultrasound and at temperatures of up to 60  $^{\circ}\text{C}.$
- If cleaning by hand, we recommend wearing single-use, powder-free latex gloves and using a lint-free cloth.
- Use one of the following approved cleaning alcohols: Ethanol with 5% isopropyl alcohol (F25-A+IPA), Alcosuisse, Bern Ethanol Absolute A 15 0 (02883), Sigma-Aldrich, Buchs SG



## ARdur® Bleu-Violet 1 side





High level of hardness



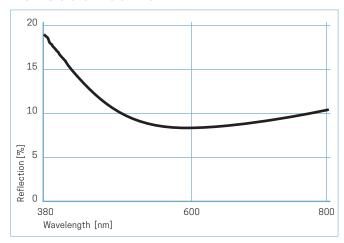
Highly wear-resistant



Achromatic







## Properties

Optical		
Reflection ≤3%	_	
UV filter	_	
Achromatic	•	
Mechanical		

Hard	•
Highly wear-resistant	•
Anti-static	•

#### Chemical

Water- and oil-repellent	_
Resistant to solvents	•
Low-temperature process	_
Alkali-resistant	_
Resistant to ultrasound	•

#### Geometric

Drilling, opening	_
Highly convex	•

### Product structure

Sapphire	
ARp	
ARp ITO	

## Quality tests

Mechanical resistance	Description	Results
Vibratory finishing (chemical- mechanical polishing)	2 hours in a vibrating bowl with cylindrical ceramic abrasives (Al <sub>2</sub> O <sub>3</sub> )	_
Scratch-Test	Test to establish the hardness and adhesiveness of the coating using a diamond tip and variable loads	_
Compliance with DIN-ISO 9211-4-02-02	Rapid pull off testing (~1 s) using adhesive tape 12–13 mm wide. Adhesive strength > 9.8 N per 25 mm	Class O "OK"

#### Chemical resistance

"Thermal shock" test DIN-ISO 9211-4-04-12	$3\times 2$ -minute cycles in de-mineralised water at $100^{\circ}\text{C}$ . 1 minute in de-mineralised water at room	Class 0 "OK"
	temperature	
Solubility DIN-ISO 9211-4-04-06	96 hours in a saline solution (45 g/l) at room temperature	
Solvent resistance DIN-ISO 9211-3-12-3 and 9022-87-04-1	1 h hour in acetone (CH <sub>3</sub> COCH <sub>3</sub> ) at room temper- ature	Class 0 "OK"
Resistance to ultrasound	Alkali bath (3% "Galvex") for 2 hours at 60 °C and 50 W of ultrasonic power	Class 1 "Minimal colour change"
Resistance to sweat DIN-ISO 9022-86-02-1	7 days in an artificial sweat solution	_

#### Resistance to climatic conditions

Cold DIN-ISO 9022-10-09-1	16 hours at -55 °C	Class 0 "OK"
Dry heat DIN-ISO 9022-11-06-1	6 hours at 85 °C with relative humidity of <40%	Class 0 "OK"

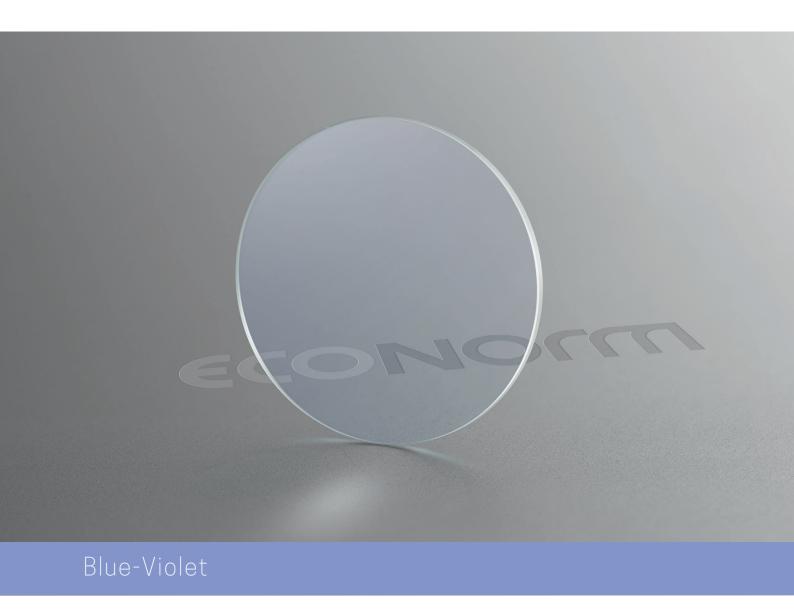
## Cleaning instructions

Please observe the following instructions on how to clean glasses that have been treated with an anti-reflective coating:

- Glasses can be cleaned easily in a neutral solution using ultrasound and at temperatures of up to 60  $^{\circ}\text{C}.$
- If cleaning by hand, we recommend wearing single-use, powder-free latex gloves and using a lint-free cloth.
- Use one of the following approved cleaning alcohols: Ethanol with 5% isopropyl alcohol (F25-A+IPA), Alcosuisse, Bern Ethanol Absolute A 15 O (02883), Sigma-Aldrich, Buchs SG



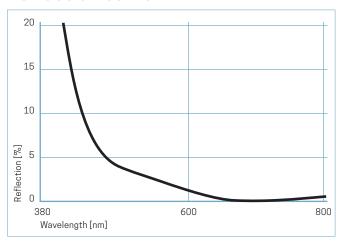
## ARcroma® Bleu-Violet





Achromatic





## Product structure



## Properties

Optical		
Reflection ≤3%	•	
UV filter	_	
Achromatic	•	

#### Mechanical

Hard	_
Highly wear-resistant	_
Anti-static	_

#### Chemical

Water- and oil-repellent	_
Resistant to solvents	•
Low-temperature process	_
Alkali-resistant	•
Resistant to ultrasound	•

#### Geometric

Drilling, opening	•
Highly convex	•

## Quality tests

Mechanical resistance	Description	Results
Vibratory finishing (chemical- mechanical polishing)	2 hours in a vibrating bowl with cylindrical ceramic abrasives (Al <sub>2</sub> O <sub>8</sub> )	Class 2
Scratch-Test	Test to establish the hardness and adhesiveness of the coating using a diamond tip and variable loads	
Compliance with DIN-ISO 9211-4-02-02	Rapid pull off testing (~1 s) using adhesive tape 12–13 mm wide. Adhesive strength > 9.8 N per 25 mm	Class 0 "OK"

#### Chemical resistance

Chemical resistance		
"Thermal shock" test	3×2-minute cycles in de-mineralised water at	Class 0
DIN-ISO 9211-4-04-12	100 °C. 1 minute in de-mineralised water at room temperature	"Effect only visible upon measurement"
Solubility	96 hours in a saline solution (45 g/l) at room	Class 0
DIN-ISO 9211-4-04-06	temperature	"Effect only visible upon measurement"
Solvent resistance	1 h hour in acetone (CH <sub>3</sub> COCH <sub>3</sub> ) at room temper-	Class 0
DIN-ISO 9211-3-12-3 and 9022-87-04-1	ature	"OK"
Resistance to ultrasound	Alkali bath (3% "Galvex") for 2 hours at 60 °C and	Class 1
	50 W of ultrasonic power	"Minimal colour change"
Resistance to sweat	7 days in an artificial sweat solution	Class 1
DIN-ISO 9022-86-02-1		"Minimal colour change"

#### Resistance to climatic conditions

Cold DIN-ISO 9022-10-09-1	16 hours at -55 °C	Class 0 "OK"
Dry heat	6 hours at 85 °C with relative humidity of <40%	Class 0
DIN-ISO 9022-11-06-1		"OK"

## Cleaning instructions

- Glasses can be cleaned easily in a neutral solution using ultrasound and at temperatures of up to 60  $^{\circ}\text{C}.$
- If cleaning by hand, we recommend wearing single-use, powder-free latex gloves and using a lint-free cloth.
- Use one of the following approved cleaning alcohols: Ethanol with 5% isopropyl alcohol (F25-A+IPA), Alcosuisse, Bern Ethanol Absolute A 15 0 (02883), Sigma-Aldrich, Buchs SG



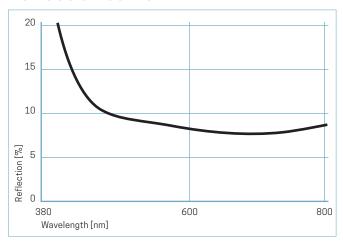
## ARcroma® Bleu-Violet 1 side





Achromatic





## Properties

Optical	
Reflection ≤3%	_
UV filter	_
Achromatic	•

#### Mechanical

Hard	_
Highly wear-resistant	_
Anti-static	_

#### Chemical

Water- and oil-repellent	_
Resistant to solvents	•
Low-temperature process	_
Alkali-resistant	•
Resistant to ultrasound	•

#### Geometric

Drilling, opening	•
Highly convex	•

### Product structure



## Quality tests

Mechanical resistance	Description	Results
Vibratory finishing (chemical- mechanical polishing)	2 hours in a vibrating bowl with cylindrical ceramic abrasives (Al <sub>2</sub> O <sub>8</sub> )	_
Scratch-Test	Test to establish the hardness and adhesiveness of the coating using a diamond tip and variable loads	_
Compliance with DIN-ISO 9211-4-02-02	Rapid pull off testing (~1 s) using adhesive tape 12-13 mm wide. Adhesive strength > 9.8 N per 25 mm	Class 0 "OK"

#### Chemical resistance

"Thermal shock" test DIN-ISO 9211-4-04-12	3×2-minute cycles in de-mineralised water at 100°C. 1 minute in de-mineralised water at room temperature	Class 0 "Effect only visible upon measurement"
Solubility DIN-ISO 9211-4-04-06	96 hours in a saline solution (45 g/l) at room temperature	_
Solvent resistance DIN-ISO 9211-3-12-3 and 9022-87-04-1	1 h hour in acetone (CH <sub>3</sub> COCH <sub>3</sub> ) at room temper- ature	Class 0 "OK"
Resistance to ultrasound	Alkali bath (3% "Galvex") for 2 hours at 60 °C and 50 W of ultrasonic power	Class 1 "Minimal colour change"
Resistance to sweat DIN-ISO 9022-86-02-1	7 days in an artificial sweat solution	_

#### Resistance to climatic conditions

Cold DIN-ISO 9022-10-09-1	16 hours at -55 °C	Class 0 "OK"
Dry heat	6 hours at 85 °C with relative humidity of <40%	Class 0
DIN-ISO 9022-11-06-1		"OK"

## Cleaning instructions

Please observe the following instructions on how to clean glasses that have been  $% \left\{ 1,2,\ldots ,n\right\} =0$ treated with an anti-reflective coating:

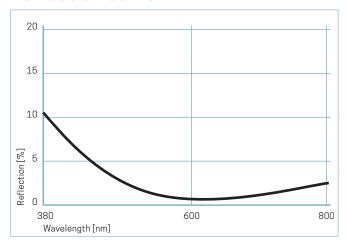
- Glasses can be cleaned easily in a neutral solution using ultrasound and at temperatures of up to 60  $^{\circ}\text{C}.$
- If cleaning by hand, we recommend wearing single-use, powder-free latex gloves and using a lint-free cloth.
- Use one of the following approved cleaning alcohols: Ethanol with 5% isopropyl alcohol (F25-A+IPA), Alcosuisse, Bern Ethanol Absolute A 15 0 (02883), Sigma-Aldrich, Buchs SG



# AR Bleu-Violet







## Product structure



## Properties

Optical	
Reflection ≤3%	•
UV filter	_
Achromatic	_

#### Mechanical

Hard	_
Highly wear-resistant	_
Anti-static	_

#### Chemical

Water- and oil-repellent	_
Resistant to solvents	•
Low-temperature process	_
Alkali-resistant	•
Resistant to ultrasound	•

#### Geometric

Drilling, opening	•
Highly convex	_

## Quality tests

Mechanical resistance	Description	Results
Vibratory finishing (chemical- mechanical polishing)	2 hours in a vibrating bowl with cylindrical ceramic abrasives (Al <sub>2</sub> O <sub>3</sub> )	Class 2
Scratch-Test	Test to establish the hardness and adhesiveness of the coating using a diamond tip and variable loads	to the second of
Compliance with DIN-ISO 9211-4-02-02	Rapid pull off testing (~1 s) using adhesive tape 12–13 mm wide. Adhesive strength > 9.8 N per 25 mm	Class 0 "OK"

#### Chemical resistance

Chemical resistance		
"Thermal shock" test DIN-ISO 9211-4-04-12	3× 2-minute cycles in de-mineralised water at 100 °C. 1 minute in de-mineralised water at room temperature	Class 0 "Effect only visible upon measurement"
Solubility DIN-ISO 9211-4-04-06	96 hours in a saline solution (45 g/l) at room temperature	Class 1 "Sous lampe de visitage, taches perceptibles"
Solvent resistance DIN-ISO 9211-3-12-3 and 9022-87-04-1	1 h hour in acetone (CH <sub>3</sub> COCH <sub>3</sub> ) at room temper- ature	Class 0 "OK"
Resistance to ultrasound	Alkali bath (3% "Galvex") for 2 hours at 60 °C and 50 W of ultrasonic power	Class 0 "OK"
Resistance to sweat DIN-ISO 9022-86-02-1	7 days in an artificial sweat solution	Class 0 "Effect only visible upon measurement"

#### Resistance to climatic conditions

Cold DIN-ISO 9022-10-09-1	16 hours at -55 °C	Class 0 "OK"
Dry heat	6 hours at 85 °C with relative humidity of <40%	Class O
DIN-ISO 9022-11-06-1		"OK"

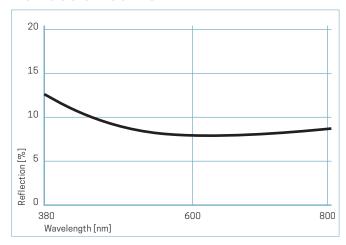
## Cleaning instructions

- Glasses can be cleaned easily in a neutral solution using ultrasound and at temperatures of up to 60  $^{\circ}\text{C}.$
- If cleaning by hand, we recommend wearing single-use, powder-free latex gloves and using a lint-free cloth.
- Use one of the following approved cleaning alcohols: Ethanol with 5% isopropyl alcohol (F25-A+IPA), Alcosuisse, Bern Ethanol Absolute A 15 0 (02883), Sigma-Aldrich, Buchs SG



# AR Bleu-Violet





Properties

	Reflection ≤3%	_
	UV filter	_
	Achromatic	_

#### Mechanical

Hard	_
Highly wear-resistant	_
Anti-static	_

#### Chemical

Water- and oil-repellent	_
Resistant to solvents	•
Low-temperature process	_
Alkali-resistant	•
Resistant to ultrasound	•

#### Geometric

Drilling, opening	
Drilling, opening	•
Highly convex	_

### Product structure

Sapphire	
AR	

## Quality tests

Mechanical resistance	Description	Results
Vibratory finishing (chemical- mechanical polishing)	2 hours in a vibrating bowl with cylindrical ceramic abrasives (Al <sub>2</sub> O <sub>3</sub> )	
Scratch-Test	Test to establish the hardness and adhesiveness of the coating using a diamond tip and variable loads	_
Compliance with DIN-ISO 9211-4-02-02	Rapid pull off testing (~1 s) using adhesive tape 12-13 mm wide. Adhesive strength > 9.8 N per 25 mm	Class 0 "OK"

#### Chemical resistance

"Thermal shock" test	3×2-minute cycles in de-mineralised water at	Class 0
DIN-ISO 9211-4-04-12	100 °C. 1 minute in de-mineralised water at room temperature	"Effect only visible upon measurement"
Solubility DIN-ISO 9211-4-04-06	96 hours in a saline solution (45 g/l) at room temperature	_
Solvent resistance DIN-ISO 9211-3-12-3 and 9022-87-04-1	1 h hour in acetone (CH <sub>3</sub> COCH <sub>3</sub> ) at room temper- ature	Class 0 "OK"
Resistance to ultrasound	Alkali bath (3% "Galvex") for 2 hours at 60 °C and 50 W of ultrasonic power	Class 0 "OK"
Resistance to sweat DIN-ISO 9022-86-02-1	7 days in an artificial sweat solution	_

#### Resistance to climatic conditions

Cold DIN-ISO 9022-10-09-1	16 hours at -55 °C	Class 0 "OK"
Dry heat	6 hours at 85 °C with relative humidity of <40%	Class 0
DIN-ISO 9022-11-06-1		"OK"

## Cleaning instructions

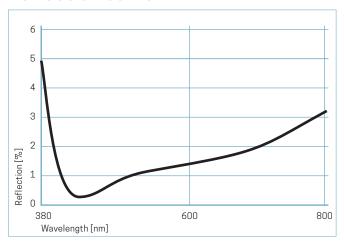
- Glasses can be cleaned easily in a neutral solution using ultrasound and at temperatures of up to 60  $^{\circ}\text{C}.$
- If cleaning by hand, we recommend wearing single-use, powder-free latex gloves and using a lint-free cloth.
- Use one of the following approved cleaning alcohols: Ethanol with 5% isopropyl alcohol (F25-A+IPA), Alcosuisse, Bern Ethanol Absolute A 15 0 (02883), Sigma-Aldrich, Buchs SG



# ARJaune







## Product structure



## Properties

Optical	
Reflection ≤3%	•
UV filter	_
Achromatic	_

## Mechanical Hard — Highly wear-resistant — Anti-static —

#### Chemical

Water- and oil-repellent	_
Resistant to solvents	•
Low-temperature process	_
Alkali-resistant	•
Resistant to ultrasound	•

#### Geometric

Drilling, opening	•
Highly convex	_

## Quality tests

Mechanical resistance	Description	Results
Vibratory finishing (chemical- mechanical polishing)	2 hours in a vibrating bowl with cylindrical ceramic abrasives (Al <sub>2</sub> O <sub>3</sub> )	Class 2
Scratch-Test	Test to establish the hardness and adhesiveness of the coating using a diamond tip and variable loads	
Compliance with DIN-ISO 9211-4-02-02	Rapid pull off testing (~1 s) using adhesive tape 12–13 mm wide. Adhesive strength > 9.8 N per 25 mm	Class 0 "OK"

#### Chemical resistance

Chemical resistance		
"Thermal shock" test DIN-ISO 9211-4-04-12	3×2-minute cycles in de-mineralised water at 100 °C. 1 minute in de-mineralised water at room temperature	Class 0 "Effect only visible upon measurement"
Solubility DIN-ISO 9211-4-04-06	96 hours in a saline solution (45 g/l) at room temperature	Class 0 "Effect only visible upon measurement"
Solvent resistance DIN-ISO 9211-3-12-3 and 9022-87-04-1	1 h hour in acetone (CH <sub>3</sub> COCH <sub>3</sub> ) at room temper- ature	Class 0 "OK"
Resistance to ultrasound	Alkali bath (3% "Galvex") for 2 hours at 60 °C and 50 W of ultrasonic power	Class 0 "OK"
Resistance to sweat DIN-ISO 9022-86-02-1	7 days in an artificial sweat solution	Class 0 "Effect only visible upon measurement"

#### Resistance to climatic conditions

Cold DIN-ISO 9022-10-09-1	16 hours at -55 °C	Class 0 "OK"
Dry heat	6 hours at 85 °C with relative humidity of <40%	Class 0
DIN-ISO 9022-11-06-1		"OK"

## Cleaning instructions

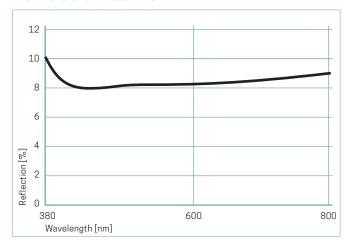
- Glasses can be cleaned easily in a neutral solution using ultrasound and at temperatures of up to 60  $^{\circ}\text{C}.$
- If cleaning by hand, we recommend wearing single-use, powder-free latex gloves and using a lint-free cloth.
- Use one of the following approved cleaning alcohols: Ethanol with 5% isopropyl alcohol (F25-A+IPA), Alcosuisse, Bern Ethanol Absolute A 15 0 (02883), Sigma-Aldrich, Buchs SG



## ARJaune 1 side







## Properties

Optical	
Reflection ≤3%	_
UV filter	_
Achromatic	_

#### Mechanical

Hard	_
Highly wear-resistant	_
Anti-static	_

#### Chemical

Water- and oil-repellent	_
Resistant to solvents	•
Low-temperature process	_
Alkali-resistant	•
Resistant to ultrasound	•

#### Geometric

Drilling, opening	•
Highly convex	_

### Product structure



## Quality tests

Mechanical resistance	Description	Results
Vibratory finishing (chemical- mechanical polishing)	2 hours in a vibrating bowl with cylindrical ceramic abrasives (Al <sub>2</sub> O <sub>3</sub> )	_
Scratch-Test	Test to establish the hardness and adhesiveness of the coating using a diamond tip and variable loads	_
Compliance with DIN-ISO 9211-4-02-02	Rapid pull off testing (~1 s) using adhesive tape 12–13 mm wide. Adhesive strength > 9.8 N per 25 mm	Class 0 "OK"

#### Chemical resistance

"Thermal shock" test DIN-ISO 9211-4-04-12	$3\times 2$ -minute cycles in de-mineralised water at $100^{\circ}\text{C}$ . 1 minute in de-mineralised water at room temperature	Class 0 "Effect only visible upon measurement"
Solubility DIN-ISO 9211-4-04-06	96 hours in a saline solution (45 g/l) at room temperature	
Solvent resistance DIN-ISO 9211-3-12-3 and 9022-87-04-1	1 h hour in acetone (CH <sub>3</sub> COCH <sub>3</sub> ) at room temper- ature	Class 0 "OK"
Resistance to ultrasound	Alkali bath (3% "Galvex") for 2 hours at 60 °C and 50 W of ultrasonic power	Class 0 "OK"
Resistance to sweat DIN-ISO 9022-86-02-1	7 days in an artificial sweat solution	_

#### Resistance to climatic conditions

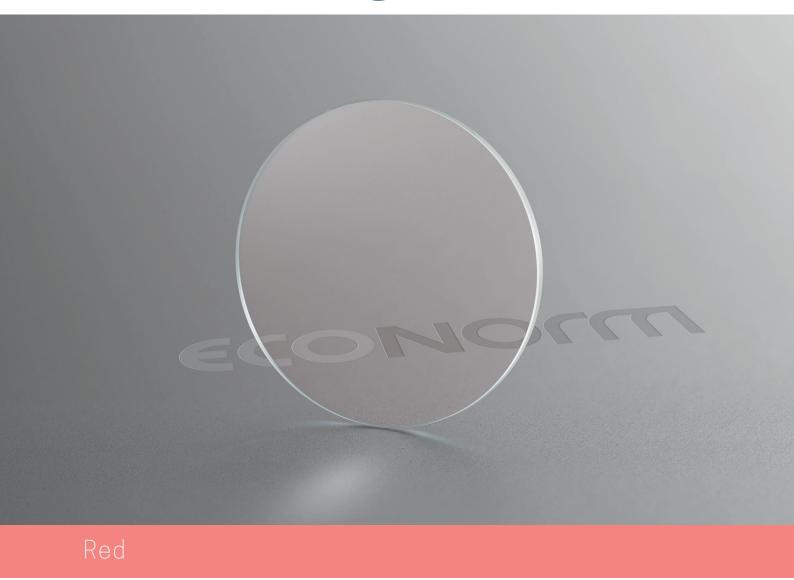
Cold DIN-ISO 9022-10-09-1	16 hours at -55 °C	Class 0 "OK"
Dry heat	6 hours at 85 °C with relative humidity of <40%	Class 0
DIN-ISO 9022-11-06-1		"OK"

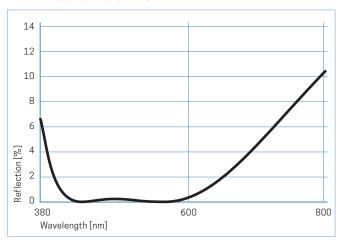
## Cleaning instructions

- Glasses can be cleaned easily in a neutral solution using ultrasound and at temperatures of up to 60  $^{\circ}\text{C}.$
- If cleaning by hand, we recommend wearing single-use, powder-free latex gloves and using a lint-free cloth.
- Use one of the following approved cleaning alcohols: Ethanol with 5% isopropyl alcohol (F25-A+IPA), Alcosuisse, Bern Ethanol Absolute A 15 0 (02883), Sigma-Aldrich, Buchs SG



# AR Rouge





## Product structure



## Properties

Optical		
Reflection ≤3%	•	
UV filter	_	
Achromatic	_	

### Mechanical Highly wear-resistant Anti-static

#### Chemical

Water- and oil-repellent	_
Resistant to solvents	•
Low-temperature process	_
Alkali-resistant	•
Resistant to ultrasound	•

#### Geometric

Drilling, opening	•
Highly convex	_

## Quality tests

Mechanical resistance	Description	Results
Vibratory finishing (chemical- mechanical polishing)	2 hours in a vibrating bowl with cylindrical ceramic abrasives (Al <sub>2</sub> O <sub>3</sub> )	Class 2
Scratch-Test	Test to establish the hardness and adhesiveness of the coating using a diamond tip and variable loads	
Compliance with DIN-ISO 9211-4-02-02	Rapid pull off testing (~1 s) using adhesive tape 12–13 mm wide. Adhesive strength > 9.8 N per 25 mm	Class 0 "OK"

#### Chemical resistance

Chemical resistance		
"Thermal shock" test	3×2-minute cycles in de-mineralised water at	Class 0
DIN-ISO 9211-4-04-12	100 °C. 1 minute in de-mineralised water at room	"Effect only visible upon measurement"
	temperature	
Solubility	96 hours in a saline solution (45 g/l) at room	Class 0
DIN-ISO 9211-4-04-06	temperature	"Effect only visible upon measurement"
Solvent resistance	1 h hour in acetone (CH <sub>3</sub> COCH <sub>3</sub> ) at room temper-	Class 0
DIN-ISO 9211-3-12-3 and	ature	"OK"
9022-87-04-1		
Resistance to ultrasound	Alkali bath (3% "Galvex") for 2 hours at 60 °C and	Class 0
	50 W of ultrasonic power	"OK"
Resistance to sweat	7 days in an artificial sweat solution	Class 0
DIN-ISO 9022-86-02-1		"Effect only visible upon measurement"

#### Resistance to climatic conditions

Cold DIN-ISO 9022-10-09-1	16 hours at -55 °C	Class 0 "OK"
Dry heat	6 hours at 85 °C with relative humidity of <40%	Class 0
DIN-ISO 9022-11-06-1		"OK"

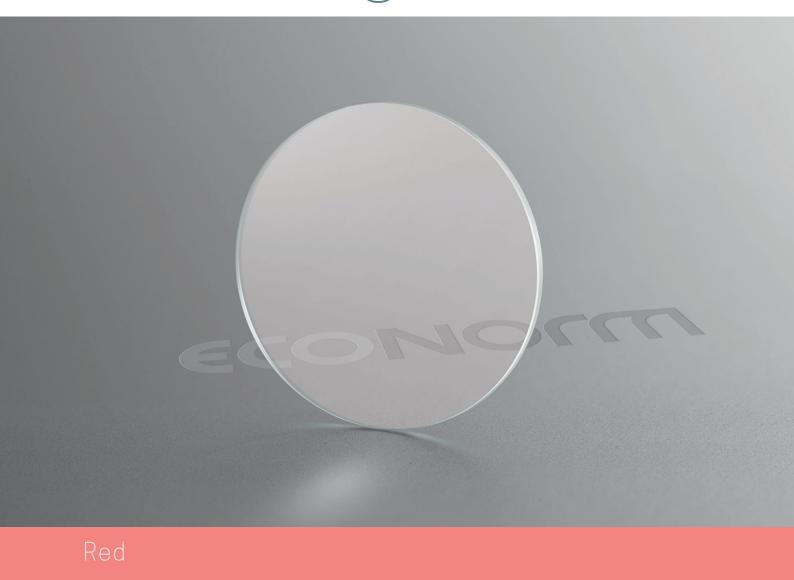
## Cleaning instructions

- Glasses can be cleaned easily in a neutral solution using ultrasound and at temperatures of up to 60  $^{\circ}\text{C}.$
- If cleaning by hand, we recommend wearing single-use, powder-free latex gloves and using a lint-free cloth.
- Use one of the following approved cleaning alcohols: Ethanol with 5% isopropyl alcohol (F25-A+IPA), Alcosuisse, Bern Ethanol Absolute A 15 0 (02883), Sigma-Aldrich, Buchs SG

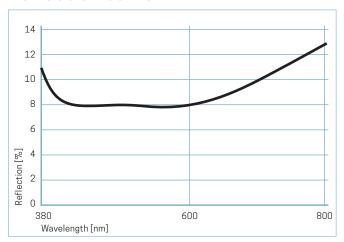


## 1 side

# ARRouge







### Properties **Optical**

•	
Reflection ≤3%	_
UV filter	_
Achromatic	_

#### Mechanical

Hard	_
Highly wear-resistant	_
Anti-static	_

#### Chemical

Water- and oil-repellent	_
Resistant to solvents	•
Low-temperature process	_
Alkali-resistant	•
Resistant to ultrasound	•

#### Geometric

Drilling, opening	•
Highly convex	_

### Product structure



## Quality tests

Mechanical resistance	Description	Results
Vibratory finishing (chemical-mechanical polishing)	2 hours in a vibrating bowl with cylindrical ceramic abrasives (Al <sub>2</sub> O <sub>3</sub> )	_
Scratch-Test	Test to establish the hardness and adhesiveness of the coating using a diamond tip and variable loads	_
Compliance with DIN-ISO 9211-4-02-02	Rapid pull off testing (~1 s) using adhesive tape 12–13 mm wide. Adhesive strength > 9.8 N per 25 mm	Class 0 "OK"

#### Chemical resistance

"Thermal shock" test DIN-ISO 9211-4-04-12	3×2-minute cycles in de-mineralised water at 100 °C. 1 minute in de-mineralised water at room temperature	Class 0 "Effect only visible upon measurement"
Solubility DIN-ISO 9211-4-04-06	96 hours in a saline solution (45 g/l) at room temperature	_
Solvent resistance DIN-ISO 9211-3-12-3 and 9022-87-04-1	1 h hour in acetone (CH <sub>3</sub> COCH <sub>3</sub> ) at room temper- ature	Class 0 "OK"
Resistance to ultrasound	Alkali bath (3% "Galvex") for 2 hours at 60 °C and 50 W of ultrasonic power	Class 0 "OK"
Resistance to sweat DIN-ISO 9022-86-02-1	7 days in an artificial sweat solution	_

#### Resistance to climatic conditions

Cold DIN-ISO 9022-10-09-1	16 hours at -55 °C	Class 0 "OK"
Dry heat DIN-ISO 9022-11-06-1	6 hours at 85 °C with relative humidity of <40%	Class 0 "OK"

## Cleaning instructions

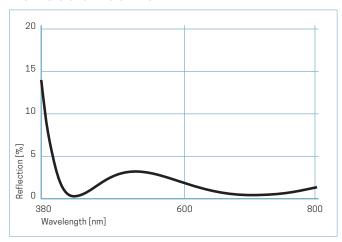
- Glasses can be cleaned easily in a neutral solution using ultrasound and at temperatures of up to 60  $^{\circ}\text{C}.$
- If cleaning by hand, we recommend wearing single-use, powder-free latex gloves and using a lint-free cloth.
- Use one of the following approved cleaning alcohols: Ethanol with 5% isopropyl alcohol (F25-A+IPA), Alcosuisse, Bern Ethanol Absolute A 15 0 (02883), Sigma-Aldrich, Buchs SG



# AR Vert







## Product structure



## Properties

Optical		
Reflection ≤3%	•	
UV filter	_	
Achromatic	_	

#### Mechanical Hard Highly wear-resistant Anti-static

#### Chemical

Water- and oil-repellent	_
Resistant to solvents	•
Low-temperature process	_
Alkali-resistant	•
Resistant to ultrasound	•

#### Geometric

Drilling, opening	•
Highly convex	_

## Quality tests

Mechanical resistance	Description	Results
Vibratory finishing (chemical- mechanical polishing)	2 hours in a vibrating bowl with cylindrical ceramic abrasives (Al <sub>2</sub> O <sub>3</sub> )	Class 2
Scratch-Test	Test to establish the hardness and adhesiveness of the coating using a diamond tip and variable loads	
Compliance with DIN-ISO 9211-4-02-02	Rapid pull off testing (~1 s) using adhesive tape 12–13 mm wide. Adhesive strength > 9.8 N per 25 mm	Class 0 "OK"

#### Chemical resistance

Snemical resistance		
"Thermal shock" test	3×2-minute cycles in de-mineralised water at	Class 0
DIN-ISO 9211-4-04-12	100 °C. 1 minute in de-mineralised water at room	"Effect only visible upon measurement"
	temperature	
Solubility	96 hours in a saline solution (45 g/l) at room	Class 0
DIN-ISO 9211-4-04-06	temperature	"Effect only visible upon measurement"
Solvent resistance	1 h hour in acetone (CH <sub>3</sub> COCH <sub>3</sub> ) at room temper-	Class 0
DIN-ISO 9211-3-12-3 and	ature	"OK"
9022-87-04-1		
Resistance to ultrasound	Alkali bath (3% "Galvex") for 2 hours at 60 °C and	Class 0
	50 W of ultrasonic power	"OK"
Resistance to sweat	7 days in an artificial sweat solution	Class 0
DIN-ISO 9022-86-02-1		"Effect only visible upon measurement"

#### Resistance to climatic conditions

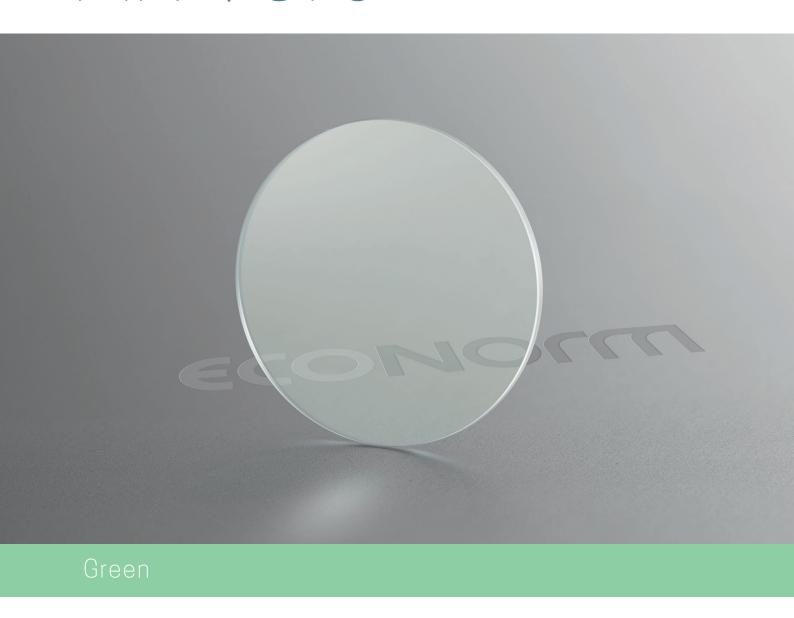
Cold DIN-ISO 9022-10-09-1	16 hours at -55 °C	Class 0 "OK"
Dry heat	6 hours at 85 °C with relative humidity of <40%	Class 0
DIN-ISO 9022-11-06-1		"OK"

## Cleaning instructions

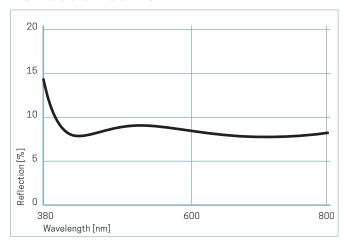
- Glasses can be cleaned easily in a neutral solution using ultrasound and at temperatures of up to 60  $^{\circ}\text{C}.$
- If cleaning by hand, we recommend wearing single-use, powder-free latex gloves and using a lint-free cloth.
- Use one of the following approved cleaning alcohols: Ethanol with 5% isopropyl alcohol (F25-A+IPA), Alcosuisse, Bern Ethanol Absolute A 15 0 (02883), Sigma-Aldrich, Buchs SG



## AR Vert 1 side







Properties

Optical		
Reflection ≤3%	_	
UV filter	_	
Achromatic	_	

#### Mechanical

Hard	_
Highly wear-resistant	_
Anti-static	_

#### Chemical

Water- and oil-repellent	_
Resistant to solvents	•
Low-temperature process	_
Alkali-resistant	•
Resistant to ultrasound	•

#### Geometric

Drilling, opening	•
Highly convex	_

### Product structure



## Quality tests

Mechanical resistance	Description	Results
Vibratory finishing (chemical- mechanical polishing)	2 hours in a vibrating bowl with cylindrical ceramic abrasives (Al <sub>2</sub> O <sub>3</sub> )	
Scratch-Test	Test to establish the hardness and adhesiveness of the coating using a diamond tip and variable loads	_
Compliance with DIN-ISO 9211-4-02-02	Rapid pull off testing (~1 s) using adhesive tape 12-13 mm wide. Adhesive strength > 9.8 N per 25 mm	Class 0 "OK"

#### Chemical resistance

"Thermal shock" test	3×2-minute cycles in de-mineralised water at	Class 0
DIN-ISO 9211-4-04-12	100 °C. 1 minute in de-mineralised water at room	"Effect only visible upon measurement"
	temperature	
Solubility	96 hours in a saline solution (45 g/l) at room	_
DIN-ISO 9211-4-04-06	temperature	
Solvent resistance	1 h hour in acetone (CH <sub>3</sub> COCH <sub>3</sub> ) at room temper-	Class 0
DIN-ISO 9211-3-12-3 and 9022-87-04-1	ature	"OK"
Resistance to ultrasound	Alkali bath (3% "Galvex") for 2 hours at 60 °C and	Class 0
	50 W of ultrasonic power	"OK"
Resistance to sweat DIN-ISO 9022-86-02-1	7 days in an artificial sweat solution	_

#### Resistance to climatic conditions

Cold DIN-ISO 9022-10-09-1	16 hours at -55 °C	Class 0 "OK"
Dry heat	6 hours at 85 °C with relative humidity of <40%	Class 0
DIN-ISO 9022-11-06-1		"OK"

## Cleaning instructions

- Glasses can be cleaned easily in a neutral solution using ultrasound and at temperatures of up to 60  $^{\circ}\text{C}.$
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#### **Contacts**

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