



Version: 30 April 2019

# RUTHUNA<sup>®</sup> 479 BLACK

## RUTHENIUM ELECTROLYTE

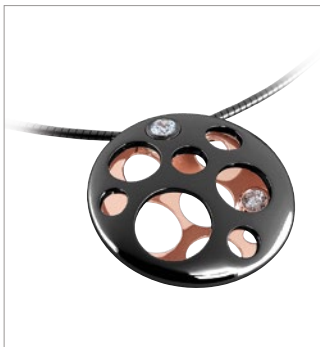


### For Black Decorative Coatings - Ideal as a Perfect Final Finish

RUTHUNA<sup>®</sup> 479 Black is the perfect final finish for dark to black surfaces for decorative applications. The black ruthenium electrolyte is strongly acidic and has a long lifetime. It is easy to operate and primarily used for rack plating.

Depending on the degree of blackening, the abrasion resistance of the layers is good to very good. Applying a strike gold layer as an undercoat is strongly recommended. If palladium-nickel or palladium are used as undercoats, strike gold plating will partly not be necessary.

RUTHUNA<sup>®</sup> 479 Black is suitable for many decorative applications, for instance in the jewellery, bathroom fittings, spectacle frame and writing utensils industries.



### Advantages

- For perfect decorative dark to black final finishes
- Degree of blackening adjustable
- Good colour constancy
- Strongly acidic electrolyte with long lifetime
- Simple bath maintenance
- Good to very good abrasion resistance
- Suitable for rack and barrel

### Applications

- Accessories
- Bathroom fittings
- Spectacle frames
- Jewellery
- Writing implements
- Watches
- Car interiors
- Shop furnishings

# RUTHUNA® 479 BLACK

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### TECHNICAL SPECIFICATIONS

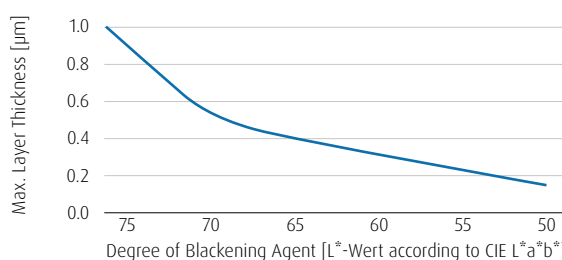
| Electrolyte characteristics |                                    |
|-----------------------------|------------------------------------|
| Electrolyte type            | Strongly acidic                    |
| Metal content               | 5 (2 - 10) g/l Ru                  |
| pH value                    | 1.2 (0.8 - 1.3)                    |
| Operating temperature       | 65 (60 - 70) °C                    |
| Current density range       | 1.5 A/dm <sup>2</sup>              |
| Plating speed               | 0.12 µm/min                        |
| Anode material              | Pt/Ti or MMO (type PLATINODE® 177) |

| Coating characteristics |                            |
|-------------------------|----------------------------|
| Coating                 | Black ruthenium            |
| Purity                  | 99.9 wt.% Ru               |
| Colour of deposit       | Grey to anthracite (black) |
| Brightness              | Bright                     |

| Blackening Agent [ml/l] | L* (CIE Lab System) | Deposition speed [µm/min] | Deposition rate [mg/Amin] |
|-------------------------|---------------------|---------------------------|---------------------------|
| 0                       | 75                  | 0.14 - 0.17               | 11 - 13                   |
| 10                      | 60 - 65             | 0.12 - 0.16               | 10 - 12                   |
| 15                      | 55 - 59             | 0.10 - 0.14               | 9 - 11                    |
| 20                      | 51 - 54             | 0.08 - 0.12               | 7 - 9                     |
| 25                      | 47 - 50             | 0.07 - 0.11               | 6 - 8                     |

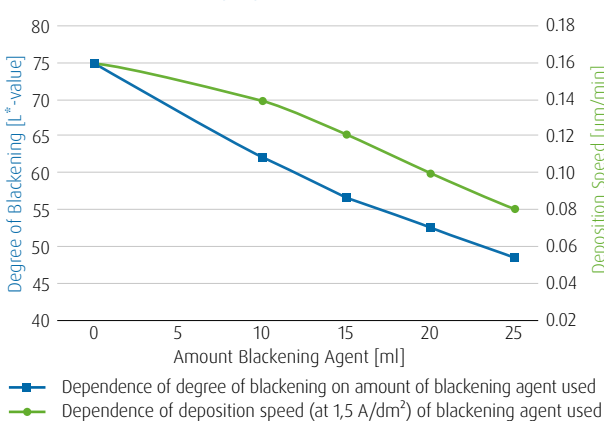
Depending of blackening degree on deposition speed and desposition rate of the amount of Blackening Agent.

#### Max. Layer Thickness vs. Degree of Blackening



Dependence of the Possible Layer Thickness on the Degree of Blackening [L\*-value according to CIE L\*a\*b\*]

#### Influence of Blackening Agent



### YOUR CONTACT

Do you have a specific question or would you like a no-obligation quote calculation? Our specialist will be happy to help you with any technical questions you might have.



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