Acktar
Advanced Coatings

- Supress stray light
- Absorb laser power
- Create high emissivity

ACKTAR

Ultra-black coatings & foils

W3+ Jena, en-tech.talks, September 2024

ACKTAR'S DEEP BLACK COATINGS OPTIMIZE OPTICAL DETECTION SYSTEMS IN ROBOTICS

SUPRESS STRAY LIGHT, ABSORB LASER POWER, CREATE HIGH EMISSIVITY

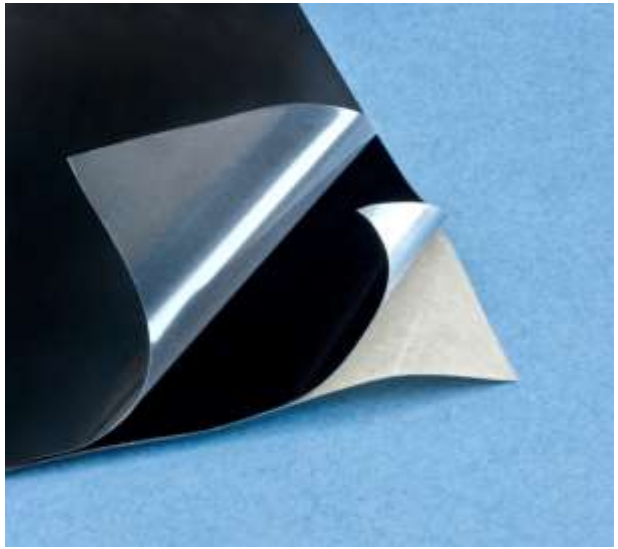
Alexander Telle

CEO ACM Coatings GmbH – subsidiary of Acktar Ltd.

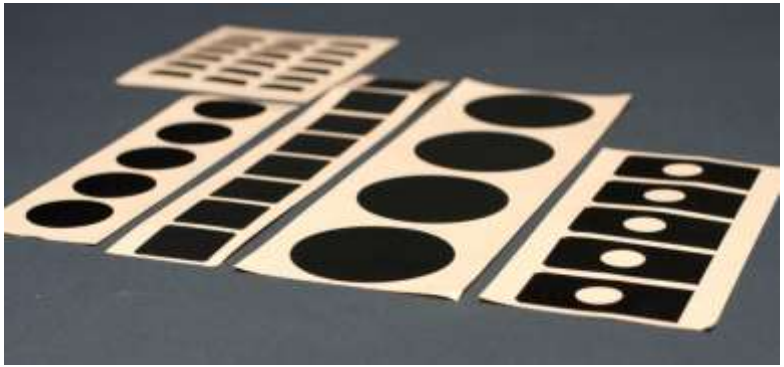
The Challenge:
IR Light and Sensor Interference in Robotics

- Impactful in autonomous systems like competition robots
- Disrupts object detection (e.g., ball detection in soccer robots)
- Causes sensor failures (e.g., IR sensor malfunction in sumo robots)

The Solution:
Acktar's High-Performance Light Absorbing Materials



- Absorbs over 98% of light across a wide range of wavelengths
- Effectively eliminates unwanted reflections
- Optimizes sensor performance for accurate data acquisition
- Deep black, non-outgassing options for various applications



Proven Success 1:
Acktar Enabling Robotic Champions - Robocup

- The Friedrich-Alexander-Universität Erlangen-Nürnberg's soccer robot
- 3rd Place at RoboCup 2024: Improved Sensor Precision with Acktar's LabertianBlack™ film

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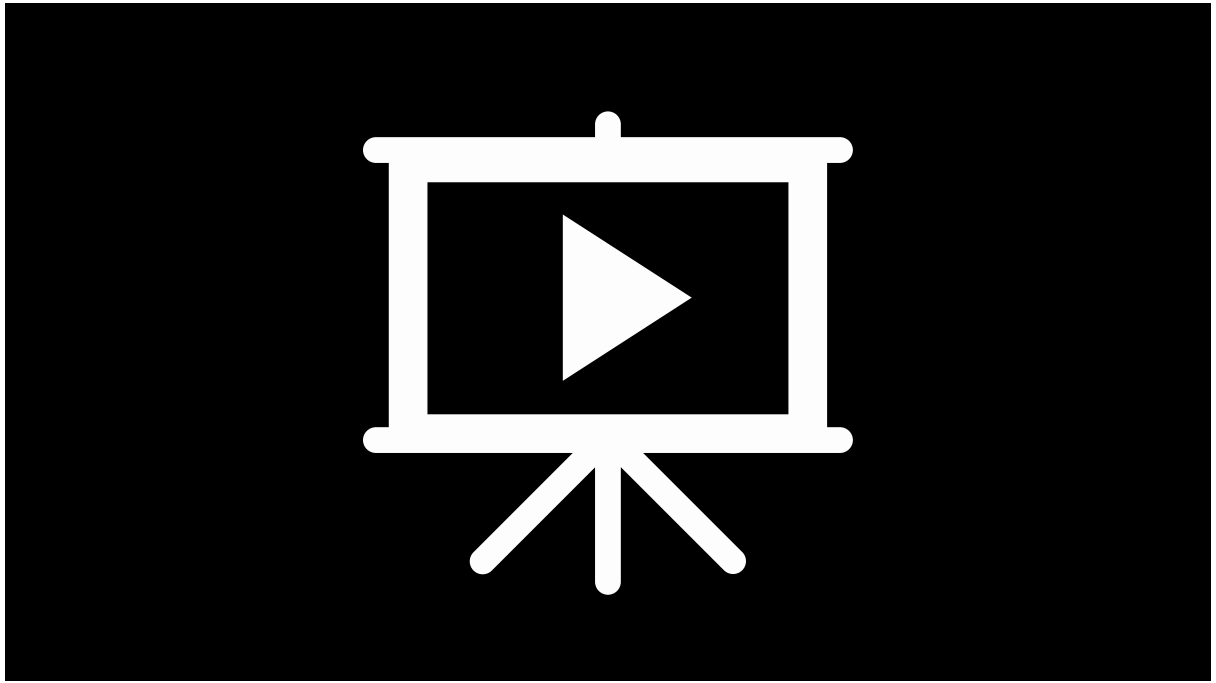

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Proven Success 2:
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- The University of São Paulo's sumo robot with strategically placed Acktar foil
- National Winter Challenge: 1st & 2nd Place with Acktar Foils for IR Sensor Shielding

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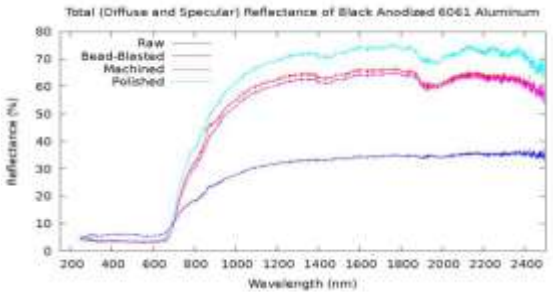
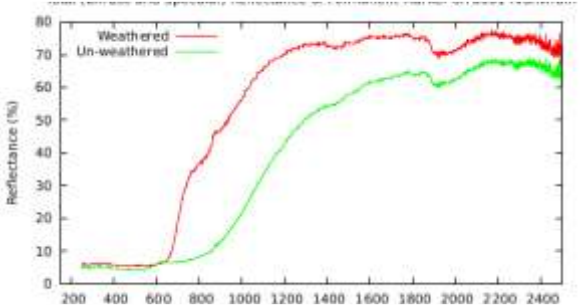
Optical performance – ACKTAR vs. other coatings

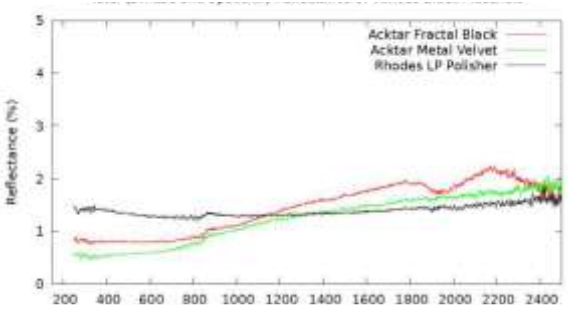
Black Anodized Aluminum



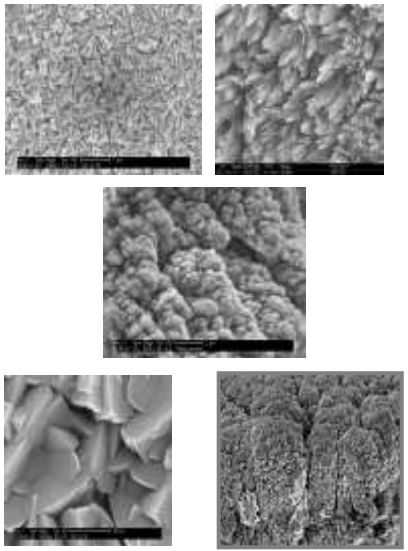
Black permanent marker



Acktar Black direct coatings



HOW Acktar's ultra-black coatings work



- Applicable for a wide spectral range: UV-VIS-IR
- Highly temperature resistant and durable
- applicable to most materials (metals, glass, ceramics, plastics)
- Totally inorganic: qualified for space / vacuum / clean room
- No particulation & high vibration stability
- Thin and reliable coating layer
- Highly conformable to sharp edges and complex geometries
- Zero fluorescence
- RoHS + REACH compliant
- Bio-compatible and cytotoxicity tested
- Replaces conventional etching, graining, anodizing

Broadband
99%
absorption
very low reflectance
in
UV – VIS – IR

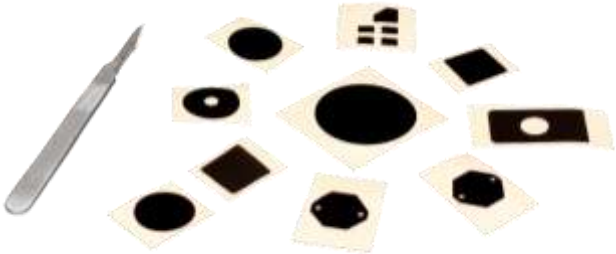
Acktar's ultra-black product portfolio

ULTRA-BLACK DIRECT COATINGS

- On your optical and mechanical components

ULTRA-BLACK COATED FOILS

- For assembling to your components



Markets & Applications

Acktar
Advanced Coatings

SPACE

- Stray light reduction: by coated deflector plates on CHEOPS or Sentinel 4
- Passive heat management: by foiled telescope on SPHERE-instrument

LASER

- Increase laser beam quality: by absorpting beam apertures
- Controlled blocking laser radiation: with laser beam dumps

AUTOMOTIVE

- Increasing performance: of LIDAR systems
- Increasing sensor precision: by calibration targets or coated apertures

MEDICAL

- Improve image quality: of endoscope cameras
- More accurate in diagnostics: by aperture diaphragms or direct coating on other optical & opto-mechanical components

BIOANALYTICS

- Improving signal strength & detection speed
- Almost zero auto-fluorescence: by blackened substrates or components e.g. microarray slides; well plates; micro plates

ONE-STOP-SHOP

- Stray light absorption & suspression
- US – VIS - IR Optics: by coating lenses rim; optical packaging; sharp edged diaphragms & blades, e.g. apertures, field stops, pinholes, slits

Contact us

Earth observation image taken by ESA Sentinel 2 with Acktar Black coatings aboard.

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