

Commercial Targets

Permafect® Reference Reflectance Targets

In the field, as you fly. Absolute spectral reflectance where it matters most.

Our Commercial Targets are a comprehensive, portable, UV-VIS-NIR reference reflectance tool that improves the success of ground truth and baseline calibrations for aerial imaging systems.

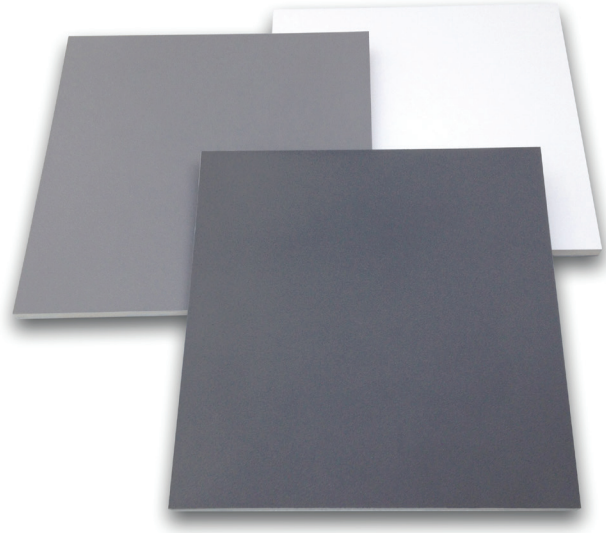
Uniform spectral response and durable

Aerial imaging systems require low uncertainty reference reflectance targets for broadband sensor characterization. The reflectance targets you use to calibrate your spectral imaging system matter. Grey painted cards, fabrics, and paper leave you at a disadvantage.

There's a better solution, Permafect greyscale targets. Permafect diffuse reflectance coatings maintain their appearance under a wide variety of lighting environments and have uniform spectral response. They are thermally and physically durable, thermally color stable, and UV light stable. Permafect has no gloss, no polarization and no fluorescence.

Permafect Commercial Targets are scalable, UV-VIS-NIR reference reflectance targets, on a rugged lightweight backing material. If you need a durable and portable, low uncertainty reference target with spectral calibration data from 350 to 2400 nm, our commercial targets are right for you.

Commercial Targets are 18.5 - 25.4 mm thick and consist of an aluminum honeycomb network sandwiched between two sheets of aluminum. The material design provides a mechanically flat, rugged, and lightweight target backing solution available in four standard target sizes; 0.5 m x 0.5 m, 1.0 m x 1.0 m, 1.5 m x 1.5 m, and 1.2 m x 2.4 m, with or without mounting.

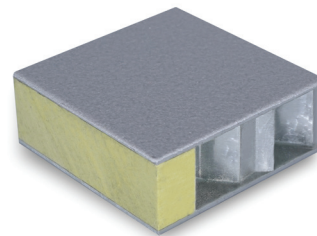


No other options compare:

- Lightweight
- Durable
- Tailorable
- Uniform
- Easy to Clean

Applications:

- Lidar
- Time of Flight
- Ground Truth
- Imager Calibration
- Sensor/Source Compensation



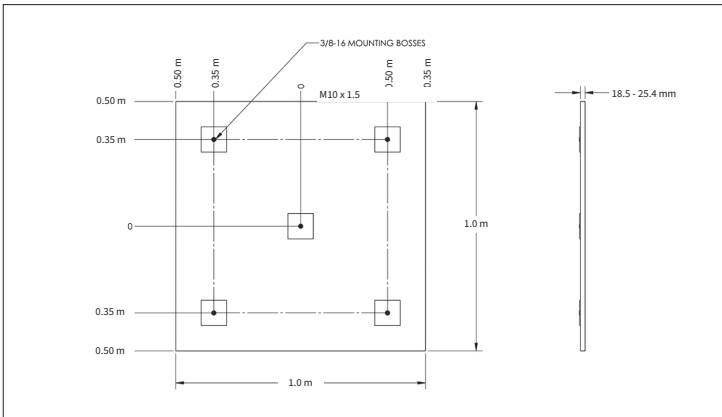
Results you can trust

All Permaflect targets include reflectance data. Commercial targets are calibrated across the UV-VIS-NIR spectral range so you can accurately baseline your spectral imaging system.

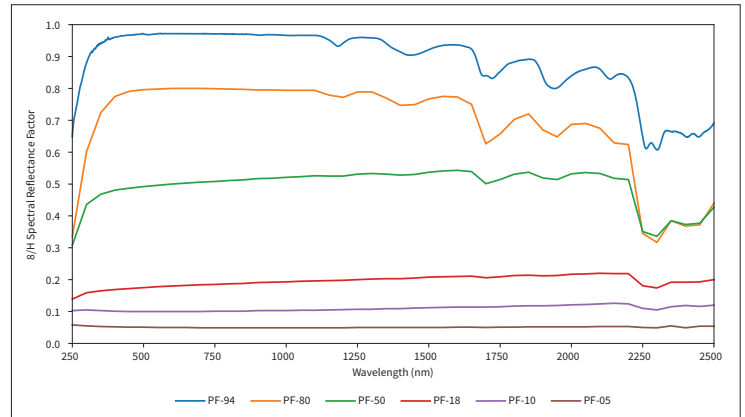
Commercial Targets include a report of the average spectral reflectance from 350 to 2400 nm. The average reflectance is calculated from nine individual measurement points collected in a grid across the target surface. All commercial targets include a 905 nm reflectance uniformity map.

Performance Specifications

Permaflect-X (%)	5%	10%	18%	50%	80%	94%
Tolerance at 905 nm:	± 2%	± 2%	± 2%	± 2%	± 2%	+ 3% / - 0%
Variance from Nominal:	3% - 7%	8% - 12%	16% - 20%	48% - 52%	78% - 82%	94% - 97%
Uniformity:	± 1%	± 1%	± 1%	± 1.5%	± 1%	± 1%



Example of Commercial Target with Mounting



Typical 8/H Reflectance Factors of Permaflect

Approximate Target Weights and Thickness

Size	Weight	Thickness
0.5 m x 0.5 m	2.0 kg	18.5 mm
1.0 m x 1.0 m	8.0 kg	18.5 mm
1.5 m x 1.5 m	18.0 kg	18.5 mm
1.2 m x 2.4 m	23.0 kg	25.4 mm

What's in the box?

- Permaflect Commercial Target in one of six reflectance levels
- Signed calibration report with UV-VIS-NIR spectral reflectance calibration and 905 nm reflectance uniformity map.
- USB with PDF report

Model Number Key

PFT-W-WW-XX-YY

PFT: Permaflect Target

W: Target Reflectance: 5, 10, 18, 50, 80, or 94%

WW: Size: 05M (0.5 m x 0.5 m), 10M (1.0 m x 1.0 m), 15M (1.5 m x 1.5 m), 12M24M (1.2 m x 2.4 m)

XX: Target Class:

RT: Rigid Target

LT: Lidar Target

CT: Commercial Target

YY: Calibration and Mounting Options:

T: Target

TC: Target with Reflectance Calibration

TCM: Target with Reflectance Calibration and Mapping

TMCM: Target with Mounting Plates, Reflectance Calibration and Mapping



Ordering Information - Commercial Targets with mounting

Model Number	Description	Order Number
PFT-05-05M-CT-TMCM	Permafect 5%, Commercial Target, 0.5 m x 0.5 m, 18.5 mm thick, Honeycomb Al backing, with mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02041-005
PFT-10-05M-CT-TMCM	Permafect 10%, Commercial Target, 0.5 m x 0.5 m, 18.5 mm thick, Honeycomb Al backing, with mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02041-010
PFT-18-05M-CT-TMCM	Permafect 18%, Commercial Target, 0.5 m x 0.5 m, 18.5 mm thick, Honeycomb Al backing, with mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02041-018
PFT-50-05M-CT-TMCM	Permafect 50%, Commercial Target, 0.5 m x 0.5 m, 18.5 mm thick, Honeycomb Al backing, with mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02041-050
PFT-80-05M-CT-TMCM	Permafect 80%, Commercial Target, 0.5 m x 0.5 m, 18.5 mm thick, Honeycomb Al backing, with mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02041-080
PFT-94-05M-CT-TMCM	Permafect 94%, Commercial Target, 0.5 m x 0.5 m, 18.5 mm thick, Honeycomb Al backing, with mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02041-095
PFT-05-10M-CT-TMCM	Permafect 5%, Commercial Target, 1.0 m x 1.0 m, 18.5 mm thick, Honeycomb Al backing, with mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02042-005
PFT-10-10M-CT-TMCM	Permafect 10%, Commercial Target, 1.0 m x 1.0 m, 18.5 mm thick, Honeycomb Al backing, with mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02042-010
PFT-18-10M-CT-TMCM	Permafect 18%, Commercial Target, 1.0 m x 1.0 m, 18.5 mm thick, Honeycomb Al backing, with mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02042-018
PFT-50-10M-CT-TMCM	Permafect 50%, Commercial Target, 1.0 m x 1.0 m, 18.5 mm thick, Honeycomb Al backing, with mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02042-050
PFT-80-10M-CT-TMCM	Permafect 80%, Commercial Target, 1.0 m x 1.0 m, 18.5 mm thick, Honeycomb Al backing, with mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02042-080
PFT-94-10M-CT-TMCM	Permafect 94%, Commercial Target, 1.0 m x 1.0 m, 18.5 mm thick, Honeycomb Al backing, with mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02042-095
PFT-05-15M-CT-TMCM	Permafect 5%, Commercial Target, 1.5 m x 1.5 m, 18.5 mm thick, Honeycomb Al backing, with mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02043-005
PFT-10-15M-CT-TMCM	Permafect 10%, Commercial Target, 1.5 m x 1.5 m, 18.5 mm thick, Honeycomb Al backing, with mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02043-010
PFT-18-15M-CT-TMCM	Permafect 18%, Commercial Target, 1.5 m x 1.5 m, 18.5 mm thick, Honeycomb Al backing, with mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02043-018
PFT-50-15M-CT-TMCM	Permafect 50%, Commercial Target, 1.5 m x 1.5 m, 18.5 mm thick, Honeycomb Al backing, with mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02043-050
PFT-80-15M-CT-TMCM	Permafect 80%, Commercial Target, 1.5 m x 1.5 m, 18.5 mm thick, Honeycomb Al backing, with mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02043-080
PFT-94-15M-CT-TMCM	Permafect 94%, Commercial Target, 1.5 m x 1.5 m, 18.5 mm thick, Honeycomb Al backing, with mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02043-095
PFT-05-12M24M-CT-TMCM	Permafect 5%, Commercial Target, 1.2 m x 2.4 m, 25.4 mm thick, Honeycomb Al backing, with mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02044-005
PFT-10-12M24M-CT-TMCM	Permafect 10%, Commercial Target, 1.2 m x 2.4 m, 25.4 mm thick, Honeycomb Al backing, with mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02044-010
PFT-18-12M24M-CT-TMCM	Permafect 18%, Commercial Target, 1.2 m x 2.4 m, 25.4 mm thick, Honeycomb Al backing, with mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02044-018
PFT-50-12M24M-CT-TMCM	Permafect 50%, Commercial Target, 1.2 m x 2.4 m, 25.4 mm thick, Honeycomb Al backing, with mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02044-050
PFT-80-12M24M-CT-TMCM	Permafect 80%, Commercial Target, 1.2 m x 2.4 m, 25.4 mm thick, Honeycomb Al backing, with mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02044-080
PFT-94-12M24M-CT-TMCM	Permafect 94%, Commercial Target, 1.2 m x 2.4 m, 25.4 mm thick, Honeycomb Al backing, with mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02044-095

Ordering Information - Commercial Targets without mounting

Model Number	Description	Order Number
PFT-05-05M-CT-TCM	Permafect 5%, Commercial Target, 0.5 m x 0.5 m, 18.5 mm thick, Honeycomb Al backing, without mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02031-005
PFT-10-05M-CT-TCM	Permafect 10%, Commercial Target, 0.5 m x 0.5 m, 18.5 mm thick, Honeycomb Al backing, without mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02031-010
PFT-18-05M-CT--TCM	Permafect 18%, Commercial Target, 0.5 m x 0.5 m, 18.5 mm thick, Honeycomb Al backing, without mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02031-018
PFT-50-05M-CT-TCM	Permafect 50%, Commercial Target, 0.5 m x 0.5 m, 18.5 mm thick, Honeycomb Al backing, without mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02031-050
PFT-80-05M-CT-TCM	Permafect 80%, Commercial Target, 0.5 m x 0.5 m, 18.5 mm thick, Honeycomb Al backing, without mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02031-080
PFT-94-05M-CT-TCM	Permafect 94%, Commercial Target, 0.5 m x 0.5 m, 18.5 mm thick, Honeycomb Al backing, without mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02031-095
PFT-05-10M-CT-TCM	Permafect 5%, Commercial Target, 1.0 m x 1.0 m, 18.5 mm thick, Honeycomb Al backing, without mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02032-005
PFT-10-10M-CT-TCM	Permafect 10%, Commercial Target, 1.0 m x 1.0 m, 18.5 mm thick, Honeycomb Al backing, without mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02032-010
PFT-18-10M-CT-TCM	Permafect 18%, Commercial Target, 1.0 m x 1.0 m, 18.5 mm thick, Honeycomb Al backing, without mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02032-018
PFT-50-10M-CT-TCM	Permafect 50%, Commercial Target, 1.0 m x 1.0 m, 18.5 mm thick, Honeycomb Al backing, without mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02032-050
PFT-80-10M-CT-TCM	Permafect 80%, Commercial Target, 1.0 m x 1.0 m, 18.5 mm thick, Honeycomb Al backing, without mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02032-080
PFT-94-10M-CT-TCM	Permafect 94%, Commercial Target, 1.0 m x 1.0 m, 18.5 mm thick, Honeycomb Al backing, without mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02032-095
PFT-05-15M-CT-TCM	Permafect 5%, Commercial Target, 1.5 m x 1.5 m, 18.5 mm thick, Honeycomb Al backing, without mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02033-005
PFT-10-15M-CT-TCM	Permafect 10%, Commercial Target, 1.5 m x 1.5 m, 18.5 mm thick, Honeycomb Al backing, without mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02033-010
PFT-18-15M-CT-TCM	Permafect 18%, Commercial Target, 1.5 m x 1.5 m, 18.5 mm thick, Honeycomb Al backing, without mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02033-018
PFT-50-15M-CT-TCM	Permafect 50%, Commercial Target, 1.5m x 1.5 m, 18.5 mm thick, Honeycomb Al backing, without mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02033-050
PFT-80-15M-CT-TCM	Permafect 80%, Commercial Target, 1.5m x 1.5 m, 18.5 mm thick, Honeycomb Al backing, without mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02033-080
PFT-94-15M-CT-TCM	Permafect 94%, Commercial Target, 1.5 m x 1.5 m, 18.5 mm thick, Honeycomb Al backing, without mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02033-095
PFT-05-12M24M-CT-TCM	Permafect 5%, Commercial Target, 1.2 m x 2.4 m, 25.4 mm thick, Honeycomb Al backing, without mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02034-005
PFT-10-12M24M-CT-TCM	Permafect 10%, Commercial Target, 1.2 m x 2.4 m, 25.4 mm thick, Honeycomb Al backing, without mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02034-010
PFT-18-12M24M-CT-TCM	Permafect 18%, Commercial Target, 1.2 m x 2.4 m, 25.4 mm thick, Honeycomb Al backing, without mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02034-018
PFT-50-12M24M-CT-TCM	Permafect 50%, Commercial Target, 1.2 m x 2.4 m, 25.4 mm thick, Honeycomb Al backing, without mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02034-050
PFT-80-12M24M-CT-TCM	Permafect 80%, Commercial Target, 1.2 m x 2.4 m, 25.4 mm thick, Honeycomb Al backing, without mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02034-080
PFT-94-12M24M-CT-TCM	Permafect 94%, Commercial Target, 1.2 m x 2.4 m, 25.4 mm thick, Honeycomb Al backing, without mounting, 905 nm nine point mapping and calibration from 350 to 2400 nm	AA-02034-095



Permaflect Targets Carry and Stow Cases

- Cases carry one to three targets
 - Hard sided case with reinforced corners
 - Foam lined fitted inserts
 - Can be used to stack targets in constrained spaces
- Grab and go
 - Recessed handles
- Grab and drag larger targets
 - EZ Haul wheels options
- Easy access
 - Hinged cases
- Secure
 - Recessed latched
- No additional packaging needed
 - Can be used for shipments, storage and transport

Carry and Stow Case Ordering Information

Model	Description	Order Number
PFT-05M-Carry Case	Carry case for Permaflect 0.5 m x 0.5 m Targets Main unit size: (L x W x H) -> 0.61 m x 0.61 m x 0.20 m No castors or wheels. Weight: 9.5 kg	AA-01523-050
PFT-1M-Carry Case Wheeled	Carry case for Permaflect 1 m x 1 m Targets Main unit size: (L x W x H) -> 1.12 m x 1.12 m x 0.20 m With corner wheel installed. Weight: 25 kg	AA-01524-100
PFT-15M-Carry Case Wheeled	Carry case for Permaflect 1.5 m x 1.5 m Targets Main unit size: (L x W x H) -> 1.63 m x 1.63 m x 0.20 m With corner wheel installed. Weight: 30 kg	AA-01524-150
PFT-15M-Target Mount and Carriage	Target mount for Permaflect 1.5 m x 1.5 m Targets; connection straps and blocks for connecting two carriages together. All hardware and tools provided	AA-01525-150