TRANSHIELD

CUSTOM COVERS FOR HAIL PROTECTION

ONE STORM, MILLIONS IN DAMAGE

Hail damage in the United States causes $10–15 billion in losses annually. From vehicles to critical equipment stored outdoors, nothing is safe when it sits unprotected in the path of a storm.

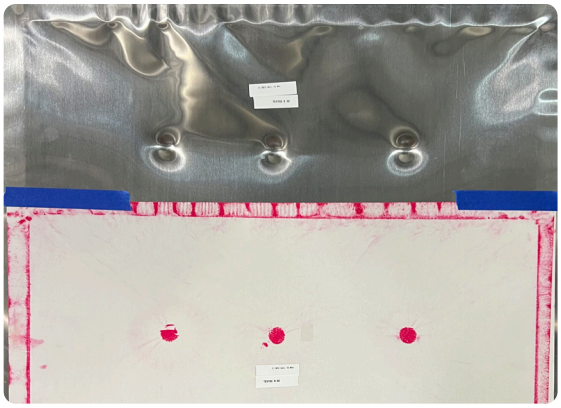
For military units, the stakes are even higher. In 2013, a sudden hailstorm at Kandahar Airfield damaged more than 80 U.S. Army helicopters and coalition aircraft parked in the open. British forces alone reported approximately £13 million (≈$16–20 million) in aircraft damage from that single event, proving that even hardened military assets are vulnerable when left exposed.

An unforeseen hailstorm doesn't just dent metal — it impacts readiness, diverts maintenance manpower, and drains budgets. And the frequency and severity of hail events are increasing, meaning the risk to valuable equipment assets is only growing.

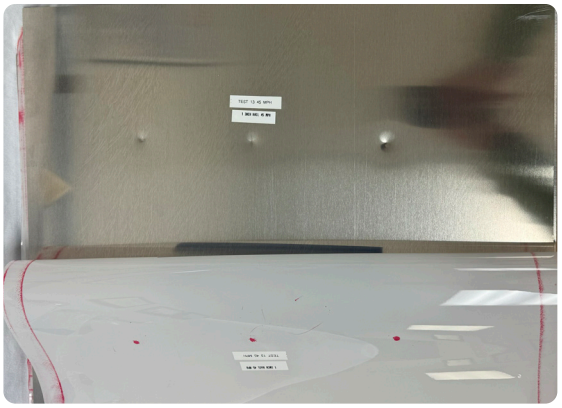
MATERIAL SCIENCE MEETS MISSION READINESS

With over 30 years of anti-corrosion and material engineering expertise, Transhield has developed a robust, impact-resistant material designed to shield critical assets from the ravages of unpredictable hailstorms.

Our advanced 3-layer hail protection material is tested to the ASTM F320 standard: easily shielding metal from 1" hail traveling as fast as 45 MPH. This impact-resistant, lightweight material can be fabricated into protective covers for aircraft, ground equipment, and mission-critical assets of virtually any size or shape.



2" Hail Damage at 72 MPH
Metal Thickness: .020"



1" Hail Damage at 45 MPH
Metal Thickness: .020"

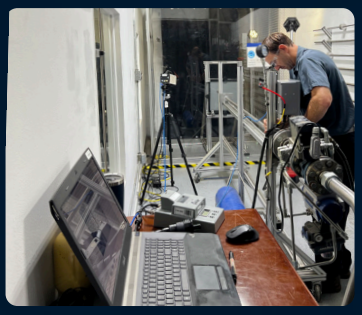
STORM-PROOF YOUR EQUIPMENT

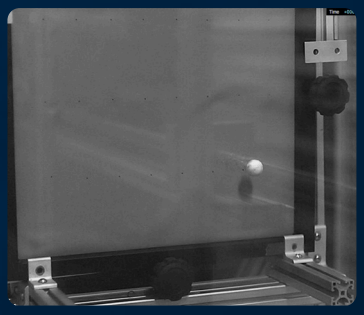
Protect your assets before the next storm hits. Contact Transhield today to develop a custom hail protection cover for your equipment.

HAIL IMPACT TEST METHODOLOGY

To quantify hail impact risk and engineer an effective mitigation solution, the Transhield Engineering Team conducted controlled impact testing using a modified version of ASTM F320 – Standard Test Method for Hail Impact Resistance of Aerospace Transparent Enclosures.

Testing was adapted to evaluate aircraft aluminum skin panels and impact mitigation materials.





HAIL PROTECTION MATERIAL DATA

PROPERTY	PERFORMANCE DATA
Material Weight	1.66 lbs per square yard
Puncture Resistance Test	ASTM D4833
Applied Force	340+ lbs
Result	No puncture observed

TEST CONFIGURATION SUMMARY

PARAMETER	TEST RANGE / SPECIFICATION
Hail Diameter	1 inch and 2 inch
Impact Velocity	45 mph – 72 mph
Substrate Material	0.020" aircraft aluminum 0.080" aircraft aluminum
Impact Modifiers	Various engineered materials, including Transhield HPC

RESULTS

Unprotected Aircraft Aluminum

- Severe dent deformation observed
- Panel distortion
- Surface integrity compromised

1" Hail at 45 MPH
Metal Thickness: .020"

Aluminum with Transhield Hail Protection Cover

- No visible dent damage
- No substrate deformation observed
- Impact energy absorbed and dispersed by cover system

1" Hail at 45 MPH
Metal Thickness: .020"

CONTACT US
general@transhield-usa.com
888.731.7700

TRANSHIELD, INC.
www.transhield-usa.com

TRANSHIELD®