

The Benefits of using Polyurethane Aviation Wheel Chocks

■ *Polyurethane wheel chocks outperform wood wheel chocks and they are much more cost effective in the long term.*

Wheel chocks are a very important component in Aviation safety. When purchasing aviation wheel chocks, two of the material choices available are wood and polyurethane. While wood wheel chocks were the first aviation chocks designed and they are still in use in many locations, upgrading to polyurethane wheel chocks is a smart choice for a number of reasons.

One of the most important reasons for using polyurethane wheel chocks is safety. Choosing a polyurethane product that is more structurally sound is far more important than saving a little money upfront on lower priced wood models, because it will eventually cost more in the long run. At Checkers Industrial Safety Products, we see safety as an investment and not a cost, which is why we have become one of the largest manufacturers of quality wheel chocks in the world.

The major advantages to choosing polyurethane aviation wheel chocks over those made from wood include:

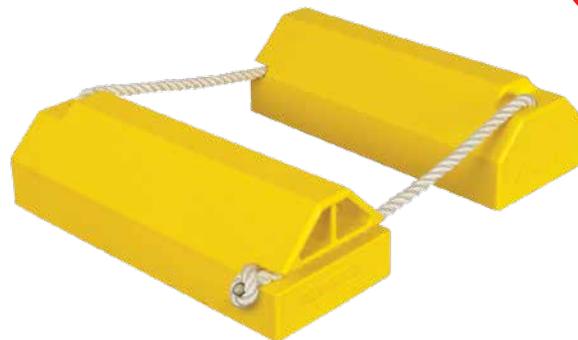
- Polyurethane wheel chocks outperform and hold up better than wood wheel chocks
- While their initial cost is higher than wood, polyurethane wheel chocks are a much better value in the long term
- Polyurethane aviation wheel chocks are tested and approved for military use
- Unlike wood, polyurethane wheel chocks are resistant to fuels, oils, and lubricants
- Polyurethane wheel chocks require no maintenance or painting (wood chocks require regular painting)
- Wood wheel chocks can crack, splinter, and rot, which can result in foreign object damage to aircraft and injury to personnel
- Wood wheel chocks exposed to wet conditions soak up water, which makes them heavy and hard to handle
- The structural integrity of wood wheel chocks can be compromised as a result of warping, rotting, or cracking. None of these are an issue with polyurethane wheel chocks.
- The rope knot hole, rope exit hole and horizontal rope slots have a smooth radius edge that improves handling and eliminates sharp edges that could cut the user or abrade the rope.

MILITARY APPROVED

Checkers polyurethane aviation wheel chocks have been independently tested and approved by the United States Military for use on military aircraft. Checkers was selected from 34 applicants by the United States Air Force for a two year Small Business Innovative Research Project (SBIR) to develop, design and manufacture an improved wheel chock to replace the current wood chock. Checkers engineers provided the material and design expertise and partnered with Air Force engineers and active duty flight personnel to perform a rigorous array of performance tests. Checkers aviation wheel chocks met all the rigid requirements and were qualified for use by Air Force personnel.



Polyurethane Aviation Wheel Chocks from Checkers



CASE STUDY – 121ST AIR REFUELING WING, OHIO NATIONAL GUARD: Aviation Wheel Chocks: A short and long term cost comparison

The upfront cost of purchasing polyurethane aviation wheel chocks is approximately 2 to 2.5 times higher than the cost of wood chocks. While this is a sizable difference in the initial expense, wood wheel chocks actually end up costing much more when evaluated over the long term. Evidence of this fact was made apparent by one of our military customers at the Ohio Air National Guard who recently revealed, “We originally projected a 10-year time frame to realize a cost savings. At this time we will realize a cost savings on the initial purchase by the end of the fourth year.”

Costs Associated with Maintaining and Replacing Wood Wheel Chocks

Maintaining wood chocks requires sanding and repainting on a regular basis. Costs associated with this maintenance include the purchase of sandpaper, paint, and supplies. In addition, the man-hours required to inspect, maintain, dispose of, and order replacement chocks is significant.

The 121st Air Refueling Wing (ARW) of the Ohio National Guard used both wood and polyurethane aviation wheel chocks side-by-side for ten years. The following statement quantitatively defines the conclusion they reached at the end of their evaluation:

“In summary, the 121st ARW spent a total of \$25,715.24 to purchase, replace, and maintain their wood aviation wheel chocks in one decade. 121st ARW could have saved 26.7% or \$6,879.05 by purchasing Checkers’ polyurethane aviation wheel chocks.”

Maintaining Polyurethane Wheel Chocks

When using polyurethane chocks, maintenance costs are virtually eliminated.

- Polyurethane wheel chocks are engineered to stand up to heavy use and extreme weather conditions
- They are mold-resistant, and will not chip, splinter, or crack
- Their structural integrity is not affected by aircraft fluids, solvents, and oils
- Using polyurethane chocks requires no painting - the color is molded directly in to the chock

| | POLYURETHANE | WOOD |
|--|--------------|------|
| Lower upfront cost | No | Yes |
| Needs to be replaced every 2 – 3 years | No | Yes |
| Resistant to aircraft fluids, solvents, and oils | Yes | No |
| Risk of Foreign Object Damage (FOD) | No | Yes |
| Cracks | No | Yes |
| Warp | No | Yes |
| Chips and splinters | No | Yes |
| Allows mold spores to grow and can rot | No | Yes |
| Becomes saturated with water and gets much heavier | No | Yes |
| Freezes to ramp | No | Yes |
| Optional Rubber Traction Pads available | Yes | No |
| Requires painting | No | Yes |



Wood chocks will crack, split, splinter, warp, and rot over time

Performance and Functionality

With military aircraft being mostly kept outside, it is imperative that equipment such as wheel chocks have the durability to hold up under extreme climate and working conditions. Polyurethane aviation wheel chocks are engineered to perform in all conditions - from freezing, sub-zero arctic temperatures to the intense, oppressive heat of the desert.

Wood wheel chocks can easily freeze to ramps, while polyurethane wheel chocks will not freeze or slip. Checkers polyurethane aviation wheel chocks are available with optional anti-slip rubber bases for use on polished hangar floors and other locations where additional traction is needed.

Effects of Water on Wheel Chocks

When exposed to wet conditions, wood wheel chocks will absorb water and get much heavier. In fact, the weight of a waterlogged wheel chock will increase by as much as 70%. This added weight makes them much harder to lift and maneuver into position under a tire. In comparison, polyurethane wheel chocks are water-resistant and maintain their lighter weight and maneuverability in all weather conditions.

MSgt. Aaron Woodring of the Ohio National Guard recently put Checkers polyurethane aviation wheel chocks to the test and reported, "I placed 40 of the wood chocks on the flight line at the same time as the polyurethane chocks. The wood chocks have been replaced twice and are in need of replacement now. The wood chocks become waterlogged and freeze to the ramp during extreme cold weather and are very heavy to move at other times. In the hangar where aircraft are washed, the wood chocks are replaced every six months due to the extreme weight from being waterlogged."

High Visibility

Checkers polyurethane aviation wheel chocks feature a high-visibility yellow color that is molded directly in to the chock and never needs painting. The color can be customized and imprinted with a company logo as well.



Polyurethane Aviation Wheel Chocks are weather resistant and require no painting or maintenance



Wood Wheel Chocks tend to split and require regular maintenance, including painting.

Safety Issues

Structural Integrity

The tendency of wood wheel chocks to warp, rot, crack, chip and splinter over time poses a significant safety risk for personnel and equipment. A rotted or cracked wood chock can damage expensive aircraft tires. Additionally, cracks or rot on wood chocks can reduce structural stability and pose a potential hazard to personnel and equipment. Checkers polyurethane aviation wheel chocks are specifically engineered to be highly durable and will not warp, rot, crack, or splinter.

Foreign Object Damage

Wood aviation wheel chocks can easily splinter and crack. When this happens, it not only poses a safety risk to personnel, but can also result in foreign object damage (FOD) to expensive aircraft engines. Polyurethane wheel chocks effectively eliminate the risk of foreign object damage because they will not splinter or crack.



Military Use

Checkers polyurethane aviation wheel chocks have been independently-tested and approved by the United States Military for use on military aircraft. Checkers was selected from 34 applicants by the United States Air Force for a two year Small Business Innovative Research Project (SBIR) to develop, design and manufacture an improved wheel chock to replace the current wood chock.

This work was completed as a joint project with the Air Force Engineering Support Activity (ESA) responsible for the management of aviation wheel chocks, for both aircraft and ground support equipment. Checkers engineers provided the material and design expertise and partnered with Air Force engineers and active duty fight personnel to perform a rigorous array of performance tests. Checkers aviation wheel chocks met all the rigid requirements and were qualified for use by Air Force personnel.

For added safety, ANSI-compliant user guidelines are molded into each chock.

Commercial and Personal Use

Checkers makes polyurethane wheel chocks that are ideal for commercial, cargo, business and private aircraft use. Various sizes are available for use on small, mid-sized, large, and oversized aircraft.

Reliability

Why Trust Checkers Industrial Safety Products?

Checkers manufactures durable polyurethane wheel chocks that stand up to the harshest conditions on the planet. They are specifically designed to perform in extremely wet, cold, and hot climates, and they offer significant advantages over traditional wood chocks. Not only do they stand up to everyday wear and tear better than wood chocks, they are also less expensive in the long run.

Choosing Checkers polyurethane aviation wheel chocks over wood is a cost-effective solution that should be seen as an investment in safety rather than a cost. While the initial capital outlay will be higher, within a few short years these wheel chocks will end up saving you money. Checkers continually strives to provide the highest quality safety products to customers throughout the world, making them a trusted and respected leader in the safety industry.