



Technical Resource

PAPER OR POLY – WHICH IS THE RIGHT CHOICE?

The choice between the use of VCI paper versus VCI poly (film) is best determined by the answers to three questions:

1. What is the application?
2. Where is the product being shipped and stored?
3. Is the application more demanding than a “typical” application?

What is the application?

Is the metal object to be protected a single part or multiple parts? Is the metal object in a returnable container or a corrugated one-way box? Is the object a large piece of machinery or a small gear?

Typically, VCI film is easier and more cost-effective to produce into bags compared to paper. When multiple parts are in need of protection, the use of a poly bag is a simple and easy alternative to wrapping them in VCI paper. In the case of returnable containers, a VCI poly bag is often used to enclose the entire container and depending upon the returnable trays or layers, paper or film may be used. If the item is a large piece of equipment, it is not feasible to wrap the entire piece in paper because the paper can become wet and break down. In these situations, a combination approach is recommended -- use VCI paper on the inside for sensitive areas and VCI film on the outside to enclose the unit and provide barrier properties.

Where is the product being shipped and stored?

Is the metal item being shipped from Indiana to Ohio or from Singapore to Michigan? Is the item going to be stored for three months inside a controlled warehouse or four years? As a general rule, if something is going to be exported, the items should be protected in a VCI poly bag. A VCI poly bag will provide moisture and oxygen protection that is superior to VCI paper.

That said, if a part is being packaged in a humid environment and then shipped, a combination of VCI paper and VCI poly may be necessary. Additional VCI paper would be used inside the package with VCI poly encompassing the outside of the entire package to provide a moisture and oxygen barrier.

Is the application more demanding than a “typical” application?

Has there been an ongoing rust problem? Are the metals highly sensitive to corrosion? In the case of ongoing rust problems, ARMOR typically leads with VCI paper as the first line of defense. Paper is used as a “carrier” of the VCI chemical because paper is more porous than film which allows the VCI to leave the paper carrier more rapidly providing quicker protection to the metal surface. In the case of flash-rust concerns for example, ARMOR WRAP® paper is used.



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Benefits of VCI paper:

- Provides a quicker vapor corrosion inhibitor. Paper as a carrier is more porous and allows the VCI chemical to leave the paper faster than film and fill the enclosed air-space quickly.
- ARMOR WRAP® papers are impregnated with VCI on both sides, which allows for easy interleaving between layers of parts (top and bottom).
- VCI papers are better at protecting highly sensitive parts that allow for a full wrap.
- VCI papers provide some secondary absorption properties due to the fact that the paper as a carrier is porous.

Benefits of VCI poly films:

- Offers the combined benefit of barrier materials with anti-corrosion properties.
- Ideal for large bulk items in bins (nuts, bolts, etc.) such as a bin liner bag.
- Great for large equipment that cannot be wrapped in paper.
- Film, especially high density polyethylene, is conformable and may be a better fit as a tray liner for trays with cavities.
- Film has more flexibility to be converted into more convenient packaging methods such as zipper bags, tubing and elastic bonnets.