



**Precision Rollers You Can Rely On™**

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## ROLLER CARE

Customers often ask us, "What can we do to make our rollers last longer?" This article describes how by using "Best Practices" in caring for your rollers, together we can improve roller life and thereby lower your costs.

### **What We Do at Imperial Rubber Products**

Our entire work force has been given special training in how to care for rollers. While you might think that these rollers might be put in some strenuous situations – such that "caring" for them might not seem likely to have an impact – they do have vulnerabilities and certain care must be taken to protect the rollers we manufacture for you.

At Imperial Rubber we take certain precautions in regards to the storage of rubber-covered rollers awaiting packaging and shipment. The rollers are stored in a non-work area, away from airborne contaminants, direct sunlight, or extreme temperatures. Ambient temperature of between 60 and 90 degrees F is our standard rule. Rollers are stored in a manner as to ensure that they do not "take a set" or develop a "flat spot." Certain rollers can be stored on a flat surface; others are supported at the journals. If the rollers are stored in our shop for an extended period on a shelf or flat surface, they are placed on foam or bubble wrap and rotated 90 degrees approximately monthly.

Different roller coverings have various low-temperature properties, and certain care must be taken to protect these rollers from cold impact or other stresses such as twisting or bending. Extreme care is taken when handling rollers at temperatures below 40F. The larger the roller, the longer it will take to change temperature, but conversely; the smaller the roller, the more it can be damaged by severe temperature changes.

### **What We Encourage You to Do**

The same precautions we take in our shop make sense to apply in your shop as well. Rollers need special care in storage, handling, and cold weather. Rubber compounds usually last longer if they are used in the environment for which they were chosen. Rollers should not be used for different environments than what their specification calls for. Swings in acidity or alkalinity do far more damage than constant exposure at either end of the scale.

In the prior section we raised the topic of Compression Set. This is the amount of deformation (expressed as a percentage of original dimensions) which a material retains after compressive stress is released. This is as much of a concern during your use of the roller in the application as it is during



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storage, if not more so. When equipment is idle, the operating pressure on the rollers should be relieved, with the weight being shifted to the journals. This will prevent the rollers from "taking a set" or developing a "flat spot."

Performance records should be kept on all rollers, which will help you make more informed decisions about future purchases as well as help maintain a current maintenance schedule. A chart for each roller should be kept in the purchasing records, and another chart should be kept near the application area so that it can be filled out periodically. Items that should be included on this chart might include (but are not limited to): hardness, date of installation, date removed for service, crown or design, covering company, and any other comments that might be needed. The original dimensions, elastomer type, stock number or any other identification might also be included for reference.

Rollers taken out of service and stored for a time may develop a number of potential problems. One is oxidation or ozone attack of the surface. This problem might be solved with a simple regrinding if the dimensional specification tolerances have not been exceeded. If deterioration is too severe during storage or use, the roller might have to be taken out of service or replaced.

There is also a change in the chemical nature of the roller cover surface upon storage of the roller. It is essential that the roller is thoroughly cleaned and protection provided for the rubber and metal surfaces before the roller is put into storage. Oils, solvents, and other chemicals that are left on the surface of the rubber roller can have serious effects on the life and future performance of the roller.

Any roller put into storage should be examined for attack at the bond line, which is where the rubber-to-cement-to-metal is subjected to repeated fluctuations in concentration, temperature, and other stresses. If oxidation of the metal core starts it may progress along the metal surface and cause a type of under-bond corrosion. The adhesive, which was formerly attached well to the metal, now finds itself attached to a much weaker layer of rust, which is where most failures will occur under these circumstances.

A cool, dark storage facility will help prevent ozone attack and oxidation of the rollers. Such a room should be free of humidity, temperature fluctuations, direct sunlight, boilers, and ozone generators. After cleaning the rollers, they should be stored in their own boxes until a time in which the roller is put back in to service or returned to the manufacturer for recovering.

In summary, by working together to take better care of your rollers – at your shop and ours – we can extend the life of your rollers and thereby lower your costs. For further information on roller care or any questions about rollers, please contact us at [info@imperialrubber.com](mailto:info@imperialrubber.com).