

# Instructions

## for producing an original antique style brown finish, using **Tried & True Browning Reagent**

- Tools required:** Tried & True Browning reagent. Two ounces will brown several barrels.  
Mill file, 10" length or longer. A Mill file has a moderately fine cut.  
A file handle or wooden dowel or block, fitted to the file's tang.  
File card, a flat steel brush for cleaning chips from the file.  
Abrasive paper or emery cloth, if a polished appearance is desired.  
Common white chalkboard chalk, for lubricating the file.  
Strong detergent in hot water, for cleaning prior to degreasing.  
Acetone, Methyl Alcohol, 409® Cleaner, or other degreasing agent.  
Rubber gloves, to avoid fingerprints, while washing and degreasing.  
Hardwood dowel plug, with tapered end, for sealing the muzzle.  
Wire, suitable for suspending the pieces during browning.  
Steel wool, 0000 grade, washed in hot soapy water immediately before use.  
A hard paste wax, or preservative oil, to protect the finished parts.
- Optional:** (Highly recommended): a simple humidity box, as described in the text.  
Bicarbonate of soda (baking soda), if desired, to quickly stop after-rust staining.
- Time required:** One hour to draw file and hand polish parts to be browned.  
Every twelve hours: five minutes to lightly card off any scale, re-apply browning reagent.  
Fifteen minutes to rinse, dry, and wax the finished parts.

### **Procedure:**

The initial step in browning the iron (steel) parts is the surface preparation. For octagon barrels, careful draw filing in one direction, carding the file and applying chalk often to minimize gouges is all the preparation needed. A mill file is best, and a ten inch file is better than shorter files as it is easier to keep it level, on the same plane as the barrel flat. Only the flats that show need be filed. If you are careful not to handle the clean metal with bare hands, no degreasing is needed after draw-filing. Parts which cannot be draw-filed must be smoothed with emery cloth wrapped around a file or other flat surface. Avoid polishing and buffing wheels. They tend to round off corners and "saucer" holes. A degreasing agent is needed to remove any oily surface film. Acetone, methyl alcohol, or 409® spray cleaner all work well.

Barrels with breech plugs, ribs and sights may be disassembled if there is oil or grease in the joints. If you elect to not remove such parts, carefully degrease the joints. Trapped grease will cause a white line on the finished piece. Joints may require additional applications, if a line appears.

Most problems with slow rust browning arise from a too highly polished surface for the rust process. Good draw-filing is the only surface polish needed for Tried & True Brown to proceed at its predicted rate. Highly polished surfaces will require many additional applications, and will start browning more slowly.

After the surface is prepared, carefully plug the muzzle with a tapered hardwood dowel to prevent reagent from rusting the bore. The breech plug should be left in place to stopper the breech. Heavy wire hangers may be run through both the muzzle dowel plug and tang bolt hole, to suspend the barrel during the browning process, to avoid fingerprints and surface contamination.

Shake the reagent well before each use. Apply Tried & True Brown with a clean cotton ball or swab, sparingly and evenly to the surface. A convenient interval is 12 hours, during which time a coat of rust will appear. At first, it will be splotchy and uneven, but will rapidly fill in with each application. Before each application, card off any loose rust scale with #0000 steel wool. Rinse the steel wool in detergent and scalding water before use, since it is oil saturated. The care used when carding will determine the smoothness and richness of

the brown finish. If you prefer a textured, matte, pitted, or pickled appearance, then card less, or not at all. Carding should remove any rough exterior scales of rust, only. Leave the finer oxide. You may not see much progress during the first two days, but it will accelerate halfway through the process. Rust browning will require eight to twelve applications and cardings, or more, over four to six days. This is highly dependent on environmental temperature and humidity. We recommend a humidity box to control humidity and temperature. Some areas of the country have plenty of humidity, while others have very little. In cold climates, indoor humidity is minimal during the winter.

A humidity box may be constructed of 2 x 2 lumber, sheathed with thin plywood, particle board, or paneling. The top panel forms a hinged lid. Place wet rags in shallow pans in bottom of the box, so as not to touch metal parts. A 25 watt lamp will maintain proper temperature, except in a cool room, which may require a 40 watt bulb. Shroud the bulb with a reflector to help distribute heat. A typical box is 12" x 12" x 48". Attach two 3/4" square mouldings along the upper frame, 3/4" apart, running full length along both sides. These guides will hold 3/4" round or square rods, bridging the span, to support wires which suspend the barrel from the muzzle dowel and tang bolt hole. The effort and expense involved in making a humidity box will double the speed of your work, and improve the quality of the finish.

**Caution:** water spots may condense and spoil your work, if you place a cool barrel in a hot box. Open the box, and allow the interior to cool a few minutes, during each application. Replace the barrel in a cool box, and allow both to warm up together.

Any Tried & True Brown remaining in the oxide finish can be neutralized with bicarbonate of soda (baking soda) in water. Or, if ignored, it will be depleted in a few days. Residual brown staining will end a few days after your work is finished, and is of no concern.

Examine the finished barrel in bright daylight. If it is dark and even, your work is done. If not, continue to apply Tried & True Brown. When satisfied, rinse the barrel in warm (not boiling) water, dry, and apply a coat of preservative oil or hard paste wax. Avoid using oils that contain rust inhibitors or penetrants, until the finish has aged a few weeks.

**Caution:** boiling browned steel parts in water will permanently convert the nice chocolate brown oxide ( $\text{Fe}_2\text{O}_3$ ) to the more modern looking black oxide ( $\text{Fe}_3\text{O}_4$ ). The process cannot be reversed.

Some makers burnish the browning with the oiled end grain of a hardwood dowel, to increase sheen. Be careful not to damage the new finish, which is still soft until it ages a few weeks. Additional applications, after degreasing, will renew a worn finish, or allow you to touch up any spots caused by finger prints, marks during final fitting or assembly, or changes in sights or sight positions.

**Professional use:** for a fast smooth finish, remove plug and parts, clean mating surfaces (leave anti-seize on plug threads), and reassemble. Clean outer surfaces with 409® spray. Use the humidity box, avoiding condensation water spots. Apply Tried & True Brown every three hours. Card off scale using Brownell's ultra fine carding wheel. The secret is the use of this wheel. Success may be achieved in one long day.

**Track**®  
\_\_\_\_\_of the Wolf, Inc.\_\_\_\_\_  
**18308 Joplin Street N.W.**  
**Elk River, MN 55330-1773**

Tel: 763-633-2500 [www.trackofthewolf.com](http://www.trackofthewolf.com) Fax: 763-633-2550

Visa, MasterCard, American Express, Discover, UPS/COD orders invited.

Order our big new catalog, filled with "exact full size photos" of our muzzle loading gun parts!