Ed’s Red Gun Solvent By C.E., "Ed" Harris

Since I mixed my first "Ed's Red" (ER) bore cleaner five years ago, hundreds of users have told me that they find it as effective as commercial products. This cleaner has an action similar to military rifle bore cleaner, such as Mil-C-372B. It is highly effective for removing plastic fouling from shotgun bores, caked carbon inn semi-automatic rifles or pistols, or leading in revolvers. "ER" is not a "decoppering" solution for fast removal of heavy jacket fouling, but because is more effective in removal of caked carbon and primer residues than most other cleaners, so metal fouling is reduced when "ER" is used.

I researched the subject rather thoroughly and determined there was no technical reason why an effective firearm bore cleaner couldn't be mixed using common hardware store ingredients. The resulting cleaner is safe, effective, inexpensive, provides excellent corrosion protection and adequate residual lubrication. Routine oiling after cleaning is unnecessary except for storage exceeding 1 year, or in harsh environments, such as salt air exposure.

The formula is adapted from Hatcher's "Frankford Arsenal Cleaner No.18," but substitute’s equivalent modern materials. Hatcher's recipe called for equal parts of acetone, turpentine, Pratts Astral Oil and sperm oil, and (optionally) 200 grams of anhydrous lanolin per liter into the cleaner.

Some discussion of the ingredients in ER is helpful to understand the properties of the cleaner and how it works. Pratts Astral Oil was nothing more than acid free, deodorized kerosene. Today you would ask for "K1" kerosene of the type sold for use in indoor space heaters.

An inexpensive, effective substitute for sperm oil is Dexron III automatic transmission fluid. Prior to 1950 most ATF's were sperm oil based. During WWII sperm oil was mostly unavailable, so highly refined, dewaxed hydrofinished petroleum oils were developed, which had excellent thermal stability. When antioxidants were added to prevent gumming these worked well in precision instruments.

With the high demand for automatic transmission autos after WWII, sperm oil was no longer practical to produce ATFs in the needed quantities needed, so the wartime expedients were mass produced. ATFs have been continually improved over the years. The additives contained in Dexron include detergents or other surfactants which are highly suitable for inclusion in an all-purpose cleaner, lubricant and preservative.

Hatcher's Frankford Arsenal No. 18 used gum spirits of turpentine, but turpentine is both expensive and also highly flammable, so I chose not to use it. Much safer and more inexpensive are "aliphatic mineral spirits," which are an open-chain organic solvent, rather than the closed-chain, benzene ring structure, common to "aromatics," such as naphtha or "lighter fluid." Sometimes called "safety solvent," aliphatic mineral spirits are used for thinning oil based paint, as automotive parts cleaner and is commonly sold under the names "odorless mineral spirits," "Stoddard Solvent" or "Varsol".

Acetone is included to provide an aggressive, fast-acting solvent for caked smokeless powder residues. Because acetone readily evaporates and the fumes are harmful in high concentrations, it is recommended that it be left out if the cleaner will be used indoors, in soak tanks or in enclosed spaces lacking forced air ventilation. Containers should be kept tightly closed when not in use. ER is still effective without acetone, but not as "fast-acting."

"Ed's Red" does not chemically dissolve copper fouling in rifle bores, but it does a better job of removing carbon and primer residue than most other cleaners. Many users have told me, that frequent and exclusive use of "ER" reduces copper deposits, because it removes the old impacted powder fouling left behind by other cleaners. This reduces the abrasion and adhesion of jacket metal to the bore, leaving a cleaner surface condition which reduces subsequent fouling. Experience indicates that "ER" will actually remove metal fouling in bores if it is left to "soak," for a few days so the surfactants will do the job, when followed by a repeat cleaning. You simply have to be patient.

Addition of lanolin to ER is optional, because the cleaner works perfectly well and gives adequate corrosion protection and lubrication without it. Inclusion of lanolin makes the cleaner easier on the hands, increases its lubricity and film strength and improves corrosion protection if firearms, tools or equipment will be routinely exposed to salt air, water spray, or corrosive urban atmospheres. I recommend the lanolin included if you intend to use the cleaner as a protectant for long term storage or for a "flush" after water cleaning of black powder firearms or those fired with military chlorate primers. This is because lanolin has a great affinity for water and readily emulsifies so that the bore can be wiped of residual moisture, leaving a protective film. If you inspect your guns and wipe them down twice yearly, you can leave out the lanolin and save about $10 per gallon.

At current retail prices you can buy all the ingredients to mix ER, without the lanolin for about $12 per gallon. I urge you to mix some yourself.

CONTENTS: Ed's Red Bore Cleaner

- 1 part Dexron Automatic Transmission Fluid, GM Spec. D-20265 or later.
- 1 part Kerosene - deodorized, K1 (such as for burning in heaters)
- 1 part Aliphatic Mineral Spirits (Varsol)
- 1 part Acetone
- (Optional 1 lb. of Lanolin, Anhydrous, USP per gallon, or OK to substitute Lanolin, Modified, Topical Lubricant, from the drug store)

MIXING INSTRUCTIONS:

Mix outdoors, in good ventilation. Use a clean 1 gallon metal, chemical-resistant, heavy gage PET or PVC plastic container. NFPA approved plastic gasoline storage containers are OK. Do NOT use HDPE, which is permeable, because the acetone will slowly evaporate. Acetone in ER will attack HDPE over time, causing the container to collapse, making a heck of a mess!

Add the ATF first. Use the empty container to measure the other components, so that it is thoroughly rinsed. If you incorporate the lanolin into the mixture, melt this carefully in a double boiler, taking precautions against fire. Pour the melted lanolin into a larger container, rinsing the lanolin container with the bore cleaner mix, and stirring until it is all dissolved. I recommend diverting up to 4 ozs. per quart of the 50-50 ATF/kerosene mix to use as "ER-compatible" gun oil. This can be done without impairing the effectiveness of the remaining mix. Label and safety warnings follow:

FIREARM BORE CLEANER

CAUTION: FLAMMABLE MIXTURE -- HARMFUL IF SWALLOWED -- KEEP OUT OF REACH OF CHILDREN

Contents: petroleum distillates, surfactants, organometallic antioxidants and acetone.

1. Flammable mixture, keep away from heat, sparks or flame.

2. FIRST AID, If swallowed DO NOT induce vomiting, call physician immediately. In case of eye contact immediately flush thoroughly with water and call a physician. For skin contact wash thoroughly.

3. Use with adequate ventilation. Avoid breathing vapors or spray mist. It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. If using in closed armory vaults lacking forced air ventilation wear respiratory protection meeting NIOSH TC23C or equivalent. Keep container tightly closed when not in use.

INSTRUCTIONS FOR USE:

1. Open the firearm action and ensure the bore is clear. Cleaning is most effective when done while the barrel is still warm from firing. Saturate a cotton patch with bore cleaner, wrap or impale on jag and push it through the bore from breech to muzzle. The patch should be a snug fit. Let the first patch fall off and do not pull it back into the bore.

2. Wet a second patch, and similarly start it into the bore from the breech, this time scrubbing from the throat area forward in 4-5" strokes and gradually advancing until the patch emerges out the muzzle. Waiting approximately 1 minute to let the bore cleaner soak will improve its action.

3. For pitted, heavily carbon-fouled service rifles, leaded revolvers or neglected bores a bronze brush wet with bore cleaner may be used to remove stubborn deposits. This is unnecessary for smooth, target-grade barrels in routine use.

4. Use a final wet patch pushed straight through the bore to flush out loosened residue dissolved by Ed's Red. Let the patch fall off the jag without pulling it back into the bore. If you are finished firing, leaving the bore wet will protect it from rust for 1 year under average atmospheric conditions

5. If lanolin is incorporated into the mixture, it will protect the firearm from rust for up to two years, even in a humid environment. (For longer storage use Lee Liquid Alox or Cosmolene). "ER" will readily remove hardened Alox or Cosmolene

6. Wipe spilled Ed's Red from exterior surfaces before storing the gun. While Ed's Red is harmless to blue and nickel finishes, the acetone it contains is harmful to most wood finishes.

7. Before firing again, push two dry patches through the bore and dry the chamber, using a patch wrapped around a suitably sized brush or jag. First shot point of impact usually will not be disturbed by Ed's Red if the bore is cleaned as described.

8. I have determined to my satisfaction that when Ed's Red is used exclusively and thoroughly, that hot water cleaning is unnecessary after use of Pyrodex or military chlorate primers. However, if bores are not wiped between shots and shots and areand shots and are heavily caked from black powder fouling, hot water cleaning is recommended first to break up heavy fouling deposits. Water cleaning should be followed by a flush with Ed's Red to prevent after-rusting which could result from residual moisture. It is ALWAYS good practice to clean TWICE, TWO DAYS APART whenever using chlorate primed ammunition, just to make sure you get all the corrosive residue out.

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