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**Operating Instructions for Du-Lite's SD Compound and Necco #2
For removal or neutralization of trapped or retained salts:**

Some parts have a tendency to absorb or retain processing salts during the black oxide process. These trapped salts may not show up immediately on finished work, but, in time, the retained salts will appear in the form of a whitish powder or haze on the finished piece. Barreled receivers, cast and malleable iron, powdered metal parts, laminated parts and parts with blind holes are particularly susceptible to this problem. To overcome this problem, Du-Lite offers three different methods:

METHOD NO. 1: The simplest method, which is effective about 70% of the time, is as follows: After black oxidizing parts susceptible to bleed out, rinse in overflowing cold water, then return them to your first processing tank, Du-Lite's hot alkaline soak cleaner #29SW or #45. Mix the cleaner 12 oz/gallon and operate at a temperature of 180°F for 2-3 minutes. The cleaner will work into the recessed areas and will draw out the highly concentrated trapped salts. Next, rinse parts in hot water (150°F) followed by Du-Lite's Kwikseal, Kwikseal A or Kwikseal D as a final rust preventive.

METHOD NO. 2: Requires the use of Du-Lite's SD Compound. SD Compound is a petroleum based material. Do Not Dilute SD Compound, it is used straight as received, at a temperature of 215-220°F. After black oxidizing parts, rinse in cold water, followed by hot water for one to two minutes at 150°F - no hotter! Parts susceptible to bleed out should be removed from the hot water and excess water shaken off, but, the parts should not be allowed to dry completely. This process depends on the parts remaining moist because SD Compound turns the moisture in the recessed areas into steam forcing trapped salts out. Emerge parts in SD Compound SLOWLY because foaming will occur. This foaming is due to the moisture in the parts being turned into steam and the occluded salts being released. When the foaming action in the SD Compound stops, approximately 10-15 minutes, the process is complete and the parts are ready for transfer directly to Du-Lite's Kwikseal or Kwikseal A.

MAINTENANCE PROCEDURE FOR THE SD COMPOUND BATH: Use a plain steel tank and electric immersion heaters or steam coils. DO NOT USE GAS BURNERS TO HEAT SD COMPOUND - SD COMPOUND IS A COMBUSTIBLE OIL PRODUCT AND WILL BURN IF OVERFLOWING SOLUTION COMES IN CONTACT WITH AN OPEN FLAME. Electric immersion heaters are the preferred method of heating because the SD operating temperature is easily maintained with an automatic thermostatic temperature controller. Do not exceed the operating temperature of 215-220°F. Work processed at too high a temperature will have a reddish or pink haze. A temperature of 265°F or above, will result in damage to the SD Compound solution and it will have to be discarded and replaced. The SD Compound solution will also require replacement due to the accumulation of caustic material from the black oxide bath being released into the solution from parts being processed. An indication of this situation is a slight burning sensation on your hands or cuticles when handling processed parts. The solution level of the tank should be kept four to five inches from the top to prevent boil overs when parts start to foam. Since the SD Compound solution is only lost through "drag out" and not through consumption or depletion, you will only have to add SD to maintain the proper operating level.

METHOD NO. 3 Du-Lite's NECCO #2 is a dry granular material which, when mixed with water, forms a dilute acid solution which penetrates into areas where salts are trapped. NECCO #2 neutralizes these salts to prevent "blooming" and "bleed out" from occurring. After removing parts from the black oxide tank, rinse in overflowing cold water. Immerse parts in a bath of NECCO #2, at a temperature of 180°F - 200°F, and a concentration of 3 oz./gallon. Immersion time will vary depending on the type of work being processed. Parts with blind holes require immersion for between one to two minutes, while porous items (such as barreled actions, laminated parts and sintered metal parts) will require longer immersion time to insure complete neutralization of trapped salts. Heating may be accomplished by gas burners, or by acid resistant electric or steam immersion heaters. The tank should be constructed of stainless steel or plain steel.

MIXING INSTRUCTIONS for NECCO #2:

When mixing a new solution, the first step is to determine the number of gallons your tank holds; then you can determine the amount of NECCO #2 required to make the solution. When measuring the processing tank, use the inside dimensions. The solution should be down three to six inches from the top of the tank to allow for expansion. For square or rectangular tanks use the following formula:

Figure in Inches: Width x (Solution) Depth x Length ÷ 231 = Gallons

Example: For a tank measuring 6" x 9" x 40" with the solution down 3", calculate as follows: 6" x 6" x 40" = 1,440" ÷ 231 = 6.23 gallons

HOT WATER BOIL OUT TANK - DU-LITE DOES NOT RECOMMEND THIS PROCESS

The hot water boil out tank is used by some gunsmiths to remove occluded salts from barreled actions, sintered metal, MIM metal and parts prone to bleed out. After black oxidizing and cold water rinsing, parts are immersed in hot boiling water. This process should not be used for the following reasons: Parts placed in this tank deposit chemicals that did not get rinsed off completely or released from trapped areas. These trace chemicals pollute the hot water, staining all parts processed. Leaving parts in this tank for long periods of time will not get rid of this problem.

As the bath loses its effectiveness through normal use, a small amount of NECCO #2 can be added to the bath to bring back some of its operating strength. Since NECCO #2 is relatively inexpensive, it should be changed frequently to insure that it is working properly.

IMPORTANT! Material Safety Data Sheets for Cleaners, SD Compound and NECCO #2 are available from Du-Lite Corporation. All personnel who may come into contact with these products should read and familiarize themselves with these sheets.

THE PRODUCTS MENTIONED IN THESE INSTRUCTIONS ARE FOR INDUSTRIAL USE ONLY

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