

# FRUHAUF UNIFORMS INC. CARE AND CLEANING

## PART II

### PROLOGUE

Dry cleaning is defined as the cleaning of textiles in an organic solvent. Unlike water, dry cleaning solvents do not swell or soften fabric made of natural fibers (cotton, wool, or silk) which can cause wrinkling, shrinkage, pilling of wool fabrics, and loss of finish. Dry cleaning solvents are able to dissolve greasy, oily soils and serve as a carrier for detergents which remove water soluble soil and a flushing agent for the removal of insoluble soil from fabric during the cleaning process. Detergents are added to speed insoluble soil removal, suspend soil and remove water soluble soil. Solvents currently in use include Stoddard Solvent, perchlorethylene, Valclene®<sup>1</sup> (trifluorotrchloroethane) and Dowclene LS®<sup>2</sup> (1,1,1 trichloroethane).<sup>3</sup>

The purpose of this text is to provide the dry cleaning professional the information needed to successfully clean garments produced by *Fruhauf Uniforms Incorporated*. The following information was taken from "**Adco's General Dry cleaning Guide**" published by the **Adco Research Department of Adco, Incorporated**, located in Sedalia, Missouri. The stated purpose of their manual is "to provide basic guidelines and recommendations on the various steps of the dry cleaning process without losing the reader in a myriad of technical terms and details."

In order to insure successful cleaning of the garments produced by *Fruhauf Uniforms*, one uniform must be test cleaned before the balance of the uniforms are subjected to the cleaning process. By cleaning one garment first, the cleaning professional is able to certify compliance with the methods and practices outlined in this manual OR identify any potential problems prior to cleaning the entire order.

To indicate compliance with the methods outlined in this text, the dry cleaning professional is to sign the compliance form at the end of the booklet and then return the form to the organization responsible for the garments accompanying this manual. The organization will then keep the form on file for future reference. **Failure to complete the form will jeopardize any warranty expressed or implied by Fruhauf Uniforms Incorporated.**

If you have any questions regarding any phase of the cleaning process, please do not hesitate to call *Fruhauf Uniforms* at **1-800-858-8050**.

---

<sup>1</sup> Valclene is a registered trademark of E.I. DuPont de Nemours and Co.

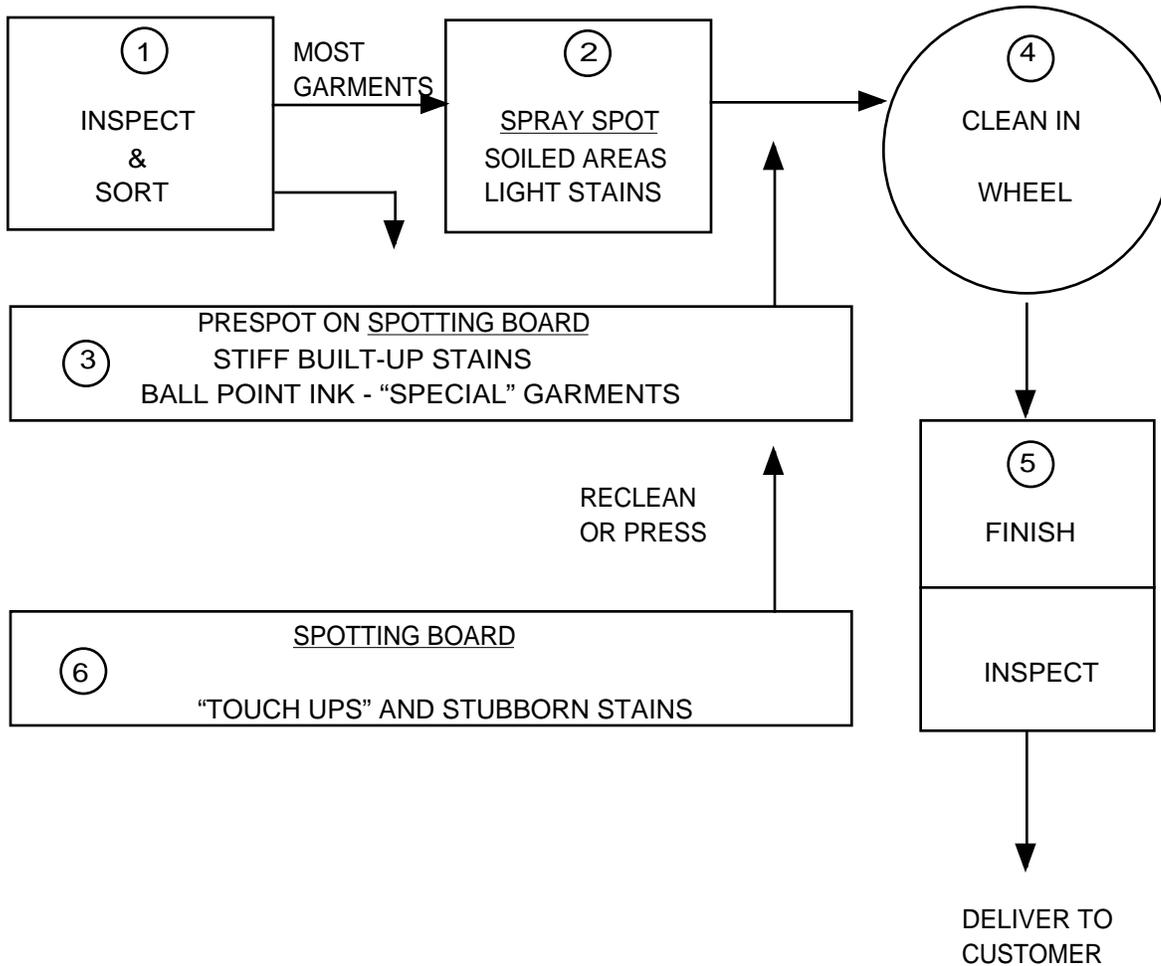
<sup>2</sup> Dowclene LS is a registered trademark of Dow Chemical Co.

<sup>3</sup> "General Dry cleaning Guide", Adco Research Department, Adco, Inc. Sedalia, Missouri

### **Acceptable Dry cleaning Practices**

# FRUHAUF UNIFORMS INC. CARE AND CLEANING

The dry cleaning process can be broken down into a series of steps as illustrated in the flow chart below. Each of these steps will be covered separately.



As garments are sorted and inspected **(1)** mist soiled area, light stains, underarm, crotch, etc. lightly with spray spotter **(2)** using *Water White Spray Spotter* or *Nox Spots* and hold 20 minutes. **(3)** The few garments with stiff built-up soil, paint, food, etc. or ball point pen ink are quickly prespotted on the spotting board - the load is then cleaned in the wheel. **(4)** During pressing or inspection **(5)** garments needing additional spotting are returned to the spotting board **(6)** for touch-up or special spotting procedures (usually very few). Each of these steps will be covered separately.

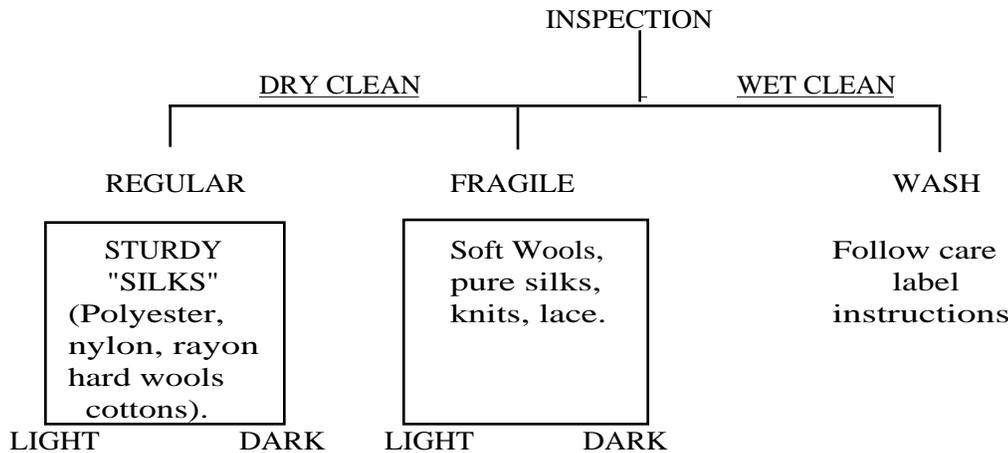
# FRUHAUF UNIFORMS INC. CARE AND CLEANING

## 1. INSPECT AND SORT - CLASSIFICATION

Before cleaning, garments should be inspected for spots and stains, special trim and finishes, have tears repaired, buttons replaced, pockets emptied and care labels checked then classified according to recommended care method, weight of fabric, color and finish. This is done for four good reasons.

- Garments dry at different rates depending upon the weight of the fabric. Therefore, light and heavy weight garments should never be cleaned together. This can result in uneven drying which causes streaking and swaling when wet heavy garments contact lighter weight fabrics already dry.
- Darker colored garments typically contain more soil than lighter colored ones. So light colored items should be cleaned separately from darker or brighter colored ones to reduce the chance of redeposition, dye staining or transfer of dyes.
- Regular/hard finish garments can withstand greater mechanical action than softer "fragiles".
- Garments labeled "wash" may fade, bleed, lose sizing, or have rubber coating or elastic damaged if dry cleaned.

### Classification scheme



### "REGULAR" CLASSIFICATION:

Sturdy "silks" (synthetics, nylon, acetate, polyester, rayon), cotton, linen, hard-finished and worsted wool fabrics, wool blends, coats, suits able to withstand the regular run time of 12 minutes cleaning required to remove heavy soil. Raincoats and uniforms fall into this classification. Moisture addition can be used to get completely clean and remove water soluble stains in the wheel.

# FRUHAUF UNIFORMS INC. CARE AND CLEANING

## **"FRAGILE" CLASSIFICATION:**

Pure silks, velvets, satins, laces, pigment prints, knits, beaded or sequin-trimmed fabrics. Should be cleaned no more than 5 minutes at high solvent level to minimize affect of solvent on trim, color or finish and of mechanical action on loss of shape, tearing or abrasion. Use reversing or "gentle" agitation.

## **SPECIAL NOTE:**

When possible, garments considered "bleeders" - ones that bleed or release large amounts of dye into the system, should be cleaned as a separate load. Never run a white or light colored load immediately after cleaning a "bleeder" load. Dye staining of the lighter colored garments could result.

## **2. SPRAY SPOTTING**

A dry cleaner must be able to remove most stains and heavy soil from garments, returning the garment to a like-new condition. There are basically three types of stains which he must be able to remove:

1. Solvent soluble stains (oil, grease, fats, fatty acid, and oil based cosmetics).
2. Water soluble stains (perspiration, urine, and sugars and food coloring from beverages).
3. Insoluble stains which require chemical treatment and special techniques.

Insoluble stains require special treatment and must be removed at the spotting board. However, the cleaner has the option of removing solvent soluble and water soluble stains either on the spotting board or in the dry cleaning bath.

Solvent soluble stains can be removed by simply running the garment in the wheel long enough to give the charged solvent time to penetrate and dissolve the soil. To remove water soluble stains, it is necessary to have moisture present in the cleaning bath to syllables the water soluble stain (but not so much that you are in effect laundering the garments). An effective way of introducing moisture to the fabric in the stained area is to pretreat soiled areas on garments with either a water based spray spotter (for water soluble stains) or a semi-wet spray spotter containing both solvent and moisture (effective on many food stains which have an oily component, like salad dressing). Spray spotters penetrate and condition stains for rapid removal in the wheel permitting use of shorter run times and lower solvent moisture levels.

As with any process, spray spotting is not completely free from pitfalls and proper procedures must be used. Improper use of solvent based or "semi-wet" prespotters can set solvent soluble stains deeper in the fabric where they are more difficult to remove. However, by remembering a few basic principles and rules, these problems can be prevented and prespotting can be used effectively as part of an efficient dry cleaning system.

# FRUHAUF UNIFORMS INC. CARE AND CLEANING

## Spray Spotting Principles.

1. The job of spray spotting is to soften and condition stains or soil so that it can be removed in the wheel.
2. The purpose of dry cleaning is to remove soil from the fabric while protecting its color and finish without swelling or distorting the fabric.
3. Spotting rings, sizing rings and color bleed are caused by the spray spotter flowing from one part of the fabric out into another portion, carrying with it the stain, soil, water soluble sizing or dye to the edge of the wet area.
4. Most oil, grease, paint, makeup and other similar spots and stains are on the surface of the fabric. Surface spraying with a solvent based spray spotter will penetrate and loosen these stains making them easier for the solvent to remove. However, heavy applications will drive these spots more deeply into the fiber making them more difficult to remove, particularly if the spot is allowed to dry before the garment goes into the wheel.

## Spray Spotting Rules.

1. Spray soiled areas lightly - do not soak (soiled area should be damp but not wet).
2. After spraying with water based spray spotters, hang up or set aside the garment for at least 20 minutes before cleaning. This gives the chemicals time to work and time for the humidity to level out before the garment goes into the wheel. Allow whites, knits, acetates, and all "fragiles" to dry completely before running in the wheel.
3. Apply solvent based or "semi-wet" spray spotters sparingly, tamp if indicated, respray and run them in the wheel before the solvent evaporates.

## **3. PRESPOTTING ON THE BOARD**

During the inspection and sorting process, garments found with special or insoluble stains such as blood, albumin, other protein stains, reducing sugars (found in most sweet beverages), paints, printing, inks, etc. should be set aside for treatment on the spotting board with specialty spotters. Because these stains do not come out with regular cleaning, they can become "set" or hardened by the heat of drying.

Other stains are easier to remove or are more thoroughly removed by prespotting, for example perspiration or cosmetics. Delicate, fragile fabrics require too short a cleaning cycle to get good spot and stain removal during cleaning so should always be prespotted first.

There are literally hundreds of prespotters available to the dry cleaner. These can be sorted into seven groups - volatile dry solvents, tannin removers, protein removers, neutral detergents or lubricants (water based), paint, oil and grease removers (solvent based), wet/dry (semi-wet) and speciality prespotters (rust removers, ink removers, digesters, amyl acetate, dye strippers, reducing bleaches, oxidizing bleaches, etc.).

There is no such thing as an all-in-one prespotter that is effective on all types of stains. Stains are too complex. To remove the majority of stains, dry cleaners will need at least one product from each group.

Which spotting chemicals are required for a particular stain depends upon the classification of the stain. Stains are classified into five classes 1) dryside stains requiring solvent action for removal, 2) wet/dry stains requiring chemical action by water based

# FRUHAUF UNIFORMS INC. CARE AND CLEANING

prespotters, 3) wet/dry stains requiring both solvent and chemical action 4) ground-in dirt, carbon, pigments and 5) unknown stains. Specific procedures for each class are outlined in Appendix A. Most natural fabrics - wool, rayon, cottons or blends of these have a high affinity for moisture. If placed into the cleaning bath while still damp, pickup of water soluble impurities can occur resulting in graying, yellowing or dyestaining. As with spray spotting, garments containing natural fibers, whites, acetates and delicate fabrics that have been prespotted with water based spotters should always be dried completely before cleaning.

## 4. THE CLEANING CYCLE

### A. Machine Loading

All loads should be weighed and the weight recorded to make sure machine is loaded within the recommended range and to serve as a means for determining when cartridges need changing, how much detergent, sizing, mothproofing, etc. to add back to the system, monitoring solvent mileage, and keeping track of operating costs per 100# of cleaning.

Due to the bulk found in band uniforms resulting from the trims and ornamentalations not found on civilian clothing, it is recommended that the machine be loaded 10% to 30% under rated capacity when cleaning coats, and 5% to 10% below the rated capacity when cleaning trousers. Higher loads produce poorer cleaning and more redeposition. In a dry-to-dry, high loadings may require extended drying times and cause uneven drying producing streaks and swales. Under loading wastes supplies and may result in poor mechanical action and uneven drying producing streaks and swales.

<u>MACHINE SIZE (#)</u>	<u>MIN-MAX LOADING (#)</u>
25	13-21
30	15-26
35	18-30
40	20-34
45	23-38
50	25-43
60	30-51
70	35-60

### B. Run Times

#### 1. Single Bath - Charged Solvent System

Heavily soiled/stained garments of "regular" classification should be cleaned for a minimum of 12 minutes at a flow rate of solvent such that filling the wheel does not take more than 90 seconds. With an adequate level of detergent and moisture, this will assure both good insoluble and water soluble soil removal. Moisture addition is desirable to bring solvent relative humidity up to 70-75%.

# FRUHAUF UNIFORMS INC. CARE AND CLEANING

"Fragile" loads should be run for no more than 5 minutes in a dry system. Use "gentle" rotation if available.

## 2. Systems Using a Prerinse.

Most new and many older dry-to-dry cleaning machines allow for prerinsing of the load for 3 minutes with distilled or work tank solvent then sending the rinse solvent to the still. This procedure sends two-thirds of the insoluble and solvent soluble soil to the still extending the life of cartridge and keeping work tank solvent in excellent condition. It also permits safer use of moisture for better water soluble stain removal.

For "regular" classification, the main cleaning bath following the prerinse should run for 8 minutes minimum and up to 12 minutes for heavily soiled garments (raincoats, uniforms, etc.). For soft or "fragile" loads, omit the prerinse and clean in "gentle" mode for 3-8 minutes on work tank solvent alone.

## C. Extraction Time

The amount of solvent remaining in a load after extraction depends upon the extraction speed (how fast the wheel turns), the size of the wheel, the length of extraction, and the fabric type of the garments in the load. After extraction the load should weigh 25-40% more than the dried weight of the load. This equals two to three gallons of perk per 100 pounds of cleaning. Higher solvent retentions can result in slow drying, poor solvent recovery and mileage and may lead to streaking and swaling. Recommended extraction times are as follows:

TABLE 2. EXTRACTION TIMES	
TYPE OF LOAD	RECOMMENDED EXTRACTION TIMES (min.)
Fragiles	1 - 2
100 % polyester, nylon raincoats, vinyls	1 - 2
Regular mixed loads*	3 - 4
All cottons	4 - 5
*Normally about 40# polyester/cotton, 20% polyester, 20% wool	

or rayon, 10% acetates or cotton.

To determine extraction efficiency, weigh out a normal load. Clean and extract as usual. After extraction, weigh the load (wear a respirator to reduce exposure to solvent vapors). Weigh the load again after drying. Use the formula below to determine solvent pick up and extraction efficiency.

$$\frac{\text{Weight of Extracted Load} - \text{Weight of Dried Load}}{\text{Weight of Dried Load}} \times 100 = \text{\% of solvent pick-up}$$

If the solvent pick up exceeds 40%, extraction time should be extended by 1/2 minute

# FRUHAUF UNIFORMS INC.

## CARE AND CLEANING

intervals until recommended levels are obtained.

### D. Drying

Good solvent recovery and problem-free drying depends upon a number of factors - proper classification, loading of the wheel, extraction efficiency, drying temperatures (both air in and out of the wheel), cooling water temperature, length of the drying cycle and tightness of the equipment. Following proper procedures and recommendations, can avoid problems such as slow drying, streaks and swales development, poor solvent mileage or solvent vapor emission into the plant.

Drying temperatures for "regular" loads should be **no higher** than **140o F.** These temperatures will assure good solvent recovery and will not "set" any stains that did not come out with cleaning.

The temperature of the air entering the wheel should be **below 195o F.** Temperatures higher than this can result in streaking and ring development in lightweight garments, and setting of wrinkles and stains. Steam pressures above 35 psi to the heating coil may cause excessive temperatures. Clothes should tumble with the fan on for one to three minutes before heat comes on to promote even drying and prevent streaks and swales.

Some cleaning machines clean and dry with a reversing action to the wheel - the wheel rotates one direction then stops and rotates the opposite way. This is okay for most cleaning and for drying drapes or other bulky loads (comforters, big heavy blankets, sleeping bags). However, for fragiles and most regular work, drying in a NON reversing mode is recommended to prevent uneven drying from occurring.

To get optimal recovery of solvent, the machine should be loaded according to guidelines provided and the exit temperature of the cooling water leaving the solvent condensing coil adjusted to read 70-80o F. Higher or lower temperatures than this can result in poor solvent recovery or extended drying time.

The four biggest causes of poor solvent reclamation in order of worst to least are (1) running too small loads, (2) warm cooling water, (3) leaky dampers, and (4) lint clogging condensing coils.

### E. Filtration

Dirt, lint, dyes, pigments and other insoluble impurities are released by garments into the solvent during the cleaning cycle. **If these impurities are not removed from the system, they can be picked up or redeposited onto other garments resulting in gray, dingy, dull looking garments.**

To prevent this redeposition of soil, dry cleaning solvent is filtered continuously to remove insoluble material, and passed through activated carbon beds to adsorb dyes and other organic impurities that produce color and odor.

Currently, disposable cartridge filters are most commonly used. Other methods of filtration use fine mesh disks, bags, screens and tubes that usually are coated with a layer of diatomaceous earth (filter powder) and activated carbon; these are cleaned off and regenerated periodically.

When new cartridges are first installed, carbon fines will be released into the system. Because of this, solvent should be circulated for 15-20 minutes then several loads of dark classification cleaned before cleaning a white or light colored load. The soil released by the dark loads coats the paper of the cartridge and helps filter the carbon fines out of the system.

# FRUHAUF UNIFORMS INC.

## CARE AND CLEANING

A secondary filter called a polishing filter is sometimes used after the main filter as a safeguard against leakage of fine soil or carbon fines through the main filter. This fine soil is often the cause of graying in dry cleaning. A polishing filter will also protect against the inadvertent omission of a felt gasket or a ruptured cartridge but should never be used as a main filter - the filter elements will plug too quickly and reduce solvent flow rate. Filter elements in a polishing filter are usually changed on the basis of pressure drop across the filter or reduction in solvent flow rate. Consult the operation manual supplied by the manufacturer for guidelines.

### F. When to Change Cartridges

1. By poundage - All cartridges have a "poundage" rating indicating how much cleaning can be done before they should be changed. As a rule, carbon core cartridges used in a single bath system doing recommended amounts of distillation are good for a maximum of 1000 pounds of cleaning per cartridge. If no distillation is being done, they should be changed after 750 pounds of cleaning per cartridge. When a prerinse is used, a cartridge may be good for up to 3,000 pounds of cleaning per cartridge.
2. By flow rate - As dirt and other insoluble soil accumulates on the outside of the cartridges, solvent flow rate is reduced. If at anytime it takes longer than 90 seconds for the wheel to fill to high operating level, cartridges should be changed regardless of how much cleaning has been done. Otherwise, poor cleaning will result and redeposition can occur.
3. By back pressure or pressure differential - The paper in cartridges restricts the flow of solvent causing a back pressure. As soil accumulates, this back pressure increases and solvent flow rate decreases. When the pressure on the pressure gauge before the filter shows or exceeds 50 psi, or the difference between the incoming pressure and the exit pressure readings exceeds 30 psi, cartridges should be changed, regardless of the poundage on them. Excessive pressure can cause fines to be driven through the filter or rupture of a cartridge.
4. When solvent gets in poor condition (dark in color or high in nonvolatile material) - Sometimes solvent quality will become poor before poundage levels are reached, filling time is too long or back pressure develops. This can occur when dye accumulates in the system from overdyed fabrics or bleeders, a defective cartridge is used or one ruptures, unusually dirty work is cleaned, or when special orders (such as smoke loads) are processed. When solvent becomes contaminated and its condition is not improved by extended circulation through the filter, cartridges should be changed. ***It is impossible to get good cleaning in dirty solvent.***

### IMPORTANT NOTE

At each end of every cartridge there should always be a felt gasket or felt washer. These gaskets should be replaced after every three changes of cartridges, sooner if any appear to be worn, severely flattened or deteriorating.

# FRUHAUF UNIFORMS INC. CARE AND CLEANING

## G. Detergent and Sizing Usage

Probably the hardest thing for a dry cleaning system to do is remove water soluble soil. Soil of a water soluble nature requires the use of a detergent specific for the dry cleaning system and process being used and small amounts of moisture.

Anionic dry cleaning detergents align themselves in solvent as microscopic groups called micelles. Micelles can be thought of as little sponges. These sponges absorb and hold moisture that in turn dissolves and removes water soluble soil from fabric. Too little detergent or moisture in the system and water soluble soil removal is poor or will not occur.

Dry cleaning detergents do more than assist water soluble soil removal. They also suspend insoluble soil preventing its redeposition back onto fabric, prevent static buildup during drying, and leave garments with a soft and comfortable "hand" and zippers working smoothly.

In single bath systems optimal cleaning results are obtained when a level of one volume percent of double strength detergent is maintained. When special injection detergents are added on each load in prerinse or batch cleaning systems, the manufacturer's directions should be carefully followed. Sizing is to dry cleaners what starch is to launderers. It is used to restore body and hand to garments that would otherwise be limp, wrinkle prone and difficult to finish. The presence of sizing in the dry cleaning system aids the finishing of garments by allowing them to hold a press longer, with shorter time under the heat and pressure of the press. This speeds up production. Sizing in fabric imparts wrinkle resistance and reduces the penetration of water soluble soil so that subsequent cleaning is easier.

During the summer months, when light weight fabrics are being cleaned, at least one volume percent of sizing should be used. Heavier clothes do not need as much sizing so levels can be reduced to one half to three-quarters of a percent (1/2 - 3/4%) by volume.

Detergent and sizing are removed from the cleaning system in three ways - by distillation, on cleaned garments and adsorption on new cartridges. Because of this, both should be added whenever new, distilled or reclaimed solvent is added to the working tank. To maintain a level of one volume percent, one and one-quarter (1 1/4) ounces of detergent and the same of sizing should be added for every gallon of new or distilled solvent added to the system. For every 100 pounds of cleaning, three ounces of each should be added to compensate for the two to three gallons of solvent recovered in drying and returned to the work tank.

New cartridges will absorb detergent from the system, but not the sizing. Therefore you should check the detergent level the next day after changing cartridges and add detergent as required to bring the system back up to operating levels (as much as 1/2 gallon of detergent per cartridge may be required with some adsorption cartridges. The amount of detergent adsorbed by a cartridge can be reduced by adding water to the system. After changing cartridges, add 8 ounces of water for each jumbo adsorption cartridge, 4 ounces for each "split").

## H. Distillation

Both solvent soluble and water soluble soils accumulate in dry cleaning solvent during the cleaning process as nonvolatile material. This material is left behind on fabric as nonvolatile residue (NVR) after the solvent has evaporated during drying. If not controlled by distillation, graying, dinginess, spotting rings, odor development, slow drying and poor solvent recovery can occur.

When operating a single bath process the equivalent of seven to eight gallons of work tank solvent should be distilled for every 100 pounds of cleaning. Two bath systems employing a prerinse, send most of the soil to the still in the prerinse. Consequently, only two to three gallons

# FRUHAUF UNIFORMS INC. CARE AND CLEANING

per 100 pounds of cleaning of work tank solvent needs to be distilled.

Steam pressure to the still should not exceed 35 psi except during warmup or final cook down where it can be raised to 55 psi for no more than five (5) minutes. Let the still residue cool 30 minutes before draining out. Residue should be drained out the same day the still is used and enough solvent pumped back into the still to cover the heating surface. This is to prevent residual still bottoms from drying to a hard crust.

It is commonly believed the use of activated carbon or clay or a mixture of the two will control buildup of NVR. This works pretty well in petroleum solvent but not in perchlorethylene. Activated carbon is excellent for removing dyes, and clay for removing some fatty acids (along with greater amounts of detergent). Liberal use of these materials can lengthen the time interval between distillations, however, neither is a substitute for distillation. Distillation when done properly, removes ALL nonvolatile matter from the solvent.

## **5a. FINISHING**

Three types of presses in common use are: hot heads, the top of which is made of polished metal, grid presses that have a perforated metal head through which steam can pass and padded presses that have a head covered with fabric. **An "adjusta-form" or "Susie" is not considered a press and is not acceptable for use on garments furnished by Fruhauf Uniforms, Incorporated. Use of any equipment of this design and type voids any expressed or implied warranty and all responsibility is placed on the dry cleaner.**

A typical press can apply a combination of four treatments to a garment: heat, pressure, steam and vacuum. The type and nature of the fabric being pressed determines what combination of treatments should be used to achieve the best results.

- A. HEAT - The temperature applied to a garment is determined by the steam pressure to the press and the length of time the press head is in contact with the fabric. The press manufacturer's recommended steam pressure should never be exceeded.
- B. PRESSURE - Pressure is applied from contact of the press head with the fabric. The longer the application, the greater the pressure.
- C. STEAM - The purpose of steam is to soften the fabric and smooth out wrinkles. It can be applied from the head or the buck (lower padded part of the press).
- D. VACUUM - The vacuum is used to hold a garment in place during pressing, and dries and cools the fabric by pulling air through it while the fabric is still held in place.

***Hand irons or puff irons should not be used when finishing uniforms supplied by Fruhauf Uniforms Incorporated.***

# FRUHAUF UNIFORMS INC. CARE AND CLEANING

Fabric	Type of Press	Temp.	Use of Steam	Head Pressure	Vacuum	Procedure
Cotton	Hot Head	400-500	Heavy: Use Of Water. Spray gun best	Heavy (5 sec.)	While head is lowered and for 2 sec. after it is raised	>Premoisten Thoroughly with Pray gun >Use heavy pressure from hot head press. >Hand iron hard -to- reach areas. >Vacuum While head is down; continue for 2 sec. after raised.
Polyester	Padded	250-275	Buck or top Steam	Medium (2 sec.)	Before head is down and for 1 sec. after	>Premoisten with buck steam until most wrinkles are gone (or use top steam for 1 sec.) >Use medium pressure from padded press. > Vacuum for 1 sec. after head is released.
Wool (hard finish)	Grid head or Padded	300-350	buck or top steam	Medium (4 sec.)	After head is released	>Use procedure for polyester but vacuum for 2 sec.

## **5b. FINAL INSPECTION**

Inspection is the final step performed on every garment prior to its being boxed or placed on a hanger or bagged. There is nothing more frustrating for a customer than to have to return to the dry cleaning store to report a problem that should have been caught and corrected before the garment was picked up.

Every garment should be inspected before it is returned to the customer to be sure it measures up to the quality standards set by the dry cleaner and expected by his customers. During the inspection, the inspector looks for spots and stains, needed repairs, excessive linting, unpleasant odors or poor finishing quality.

For an excellent source of information on inspection and quality control, see IFI Focus on Dry cleaning Bulletin, Vol. 11, No. 4, November 1987.

## **6. TOUCH UPS**

During finishing or assembly (the putting of all garments of an order or an ensemble together) garments sometimes become soiled accidentally with dirt or during inspection are found still with spots or stains that were not removed with cleaning. These problems should be corrected before returning the garment to the customer.

It is not always necessary to reclean a garment to remove pickup soil. With a tissue wetted

# FRUHAUF UNIFORMS INC. CARE AND CLEANING

out with volatile dry solvent (**Puro**) carefully wipe the pickup soil off without wetting out the fabric. If the fabric gets wet, nonvolatile residue in it may form a ring. This usually requires recleaning of the garment to correct unless the dry cleaner is very skilled at feathering out stains.

Stains that did not come out during cleaning may become "set" by the heat of drying and can sometimes be more difficult to remove than they were originally (for example caramelized sugars or protein stains). This condition usually requires spotting on the board with specialty prespotters to correct and subsequent recleaning.

# FRUHAUF UNIFORMS INC. CARE AND CLEANING

## APPENDIX

### GENERAL SPOTTING PROCEDURES

#### **Always Check For Effect of Agent on Colors!**

Apply small amount of spotter to seam or hidden area. Press white cloth or tissue to area firmly. Check for color change or transfer.

**DRYSIDE** - Oily type stains requiring solvent action. Example: Fats, oils, waxes, grease, paint, cosmetics, ink, etc.

Start by removing as much of the stain as possible with *Puro*. When bleeding of the stain stops, apply *APOG*, *Spee-Dee* or *Knock Out*. Tamp gently to break up stain and work *APOG* into the fabric. Flush loosened stain out with *Puro*. Repeat until stain is gone or no longer moves. If the stain is removed, dry area, starting from the outside edge towards the middle, or reclean the garment. If traces of stain remain, dry and work on wetside.

**WETSIDE** - Stains requiring chemical action can be broken down into two classes - Protein and tannin stains.

PROTEIN STAINS - blood, eggs,  
body discharge, milk products,  
animal glues, starch

1. *Neutra*
2. *Neutra & BPR*
3. *Neutra & Wet Spot* or  
Ammonia
4. *Digest* (enzyme preparation)
5. *Neutra*

TANNIN STAINS - beer, coffee,  
fruit, soft drinks, tea,  
catsup, mustard

1. *Neutra*
2. *Neutra & Super Tan*
3. *General Formula*
4. *Rust Remover*
5. Bleach, oxidizing

If the stain initially requires spotting on the dryside first, the area must be dry before working on the wetside. Otherwise, protein and tannin spotters will not penetrate the fabric to remove the stain. Use spotters indicated by the type and nature of the stain. To lessen the chance of color change or loss, start with the mildest strength spotter, working up to the strongest. Use each spotter until stain removal ceases before going to more powerful agent. Once stain is removed, flush thoroughly with steam or water, dry starting from the outside edge working towards the middle (feathering).

**WET/DRY STAINS** - Stains requiring both solvent and chemical action. Example: mayonnaise, salad dressing, gravy, latex paint, egg yolks.

# FRUHAUF UNIFORMS INC. CARE AND CLEANING

1. Apply *Semi-Wet*. Tamp, flush with *Puro*, steam or water.
2. Apply *Neutra*. Tamp, flush with steam or water.
3. Apply *Neutra & BPR*. Tamp, flush with steam or water.
4. Apply *Neutra*, *Wet Spot*, or ammonia. Tamp, flush with steam or water.
5. *Digest*; keep damp and warm.
6. Apply *Neutra*. Tamp, flush with steam or water.
7. Repeat steps 5 & 6 as necessary.

## GROUND-IN DIRT, CARBON, PIGMENTS

These are insoluble in solvents or water, chemical agents usually have no effect. To remove, apply *Neutra* and tamp, flush with water, repeat as needed.

## UNKNOWN STAINS

1. Stain should first be spotted on the dryside to remove any fats, waxes, oils or other solvent soluble components following the procedure for removing oily-type stains.
2. Spot the remaining traces of stain on the wet side with *Semi-Wet*. Tamp, flush and dry.
3. Treat remaining stain according to color, appearance and behavior.

RED STAINS - treat with *BPR* first, then *Super Tan*.

BLUE, BLACK GREEN OR OTHER DARK STAINS - Treat with *Super Tan* first, then *BPR*.

YELLOW TO LIGHT BROWN STAINS - Treat as tannin stains.

If stains disappear when wet, reappear when dry, treat as protein stains.

**NEVER PUT WET GARMENTS INTO THE CLEANING MACHINE. WET AREAS CAN PICK UP SOIL, DYES AND OTHER IMPURITIES THAT OFTEN ARE DIFFICULT TO REMOVE.**

# FRUHAUF UNIFORMS INC. CARE AND CLEANING

## STATEMENT OF UNDERSTANDING AND COMPLIANCE

*Please read the accompanying booklet then sign and return this form to the school immediately. All express or implied warranties are contingent upon the execution and return of this form to the school.*

*We assume that this booklet is being issued to quality dry cleaning professionals and we are interested in your input. If you have recommendations or comments concerning the information found in this booklet, we would appreciate hearing from you.*

I have carefully read and understand the contents of this booklet. I further stipulate that I will use the methods and practices contained therein when cleaning the uniforms from \_\_\_\_\_

City/State

School

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: (\_\_\_\_\_) \_\_\_\_\_

Contact person: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_