

Mary Scalco, Drycleaning & Laundry Institute

DRYCLEANING: PAST, PRESENT & FUTURE

PRINCIPAL OF DRYCLEANING

- ✘ “Dry” cleaning is not a dry process.
- ✘ Utilizes solvent liquids that are circulated through the clothes to dissolve and lift dirt, grease and oils.
- ✘ Mixture of dirt and solvent is removed, distilled and filtered so solvent can be reused

INDUSTRY STATISTICS*

- ✘ 38,755 establishments
- ✘ Employs ~ 164,500 individuals
- ✘ \$9.0 Billion
- ✘ Comprised of mom & pop establishments, few national chains
- ✘ Industry was shrinking, revenue declined 2.6% annually 2008-2013
- ✘ 80% revenue is from individual households

HISTORY DRYCLEANING SOLVENTS

- ✘ Late 19th Century—Turpentine spirits, benzene, naphtha, kerosene, white gasoline.
- ✘ 1924-1928—Stoddard introduced
- ✘ 1934—Introduction of perc, carbon tet, trichloroethylene
- ✘ 1948—Perc is primary chlorinated solvent
- ✘ 1950—140 F hydrocarbon solvent developed
- ✘ 1962—Perc primary drycleaning solvent
- ✘ 1964—Fluorinated-chlorinated solvent (Valclene) introduced
- ✘ 1980—111 Trichloroethane makes brief appearance

HIGH FLASHPOINT HYDROCARBONS

- ✘ Mid-1990's—First high flashpoint hydrocarbon solvent, DF 2000, introduced
- ✘ Isoparaffinic hydrocarbons
 - + Mixtures of C8 to C12 naphthenic, aromatic & paraffinic compounds
 - + 2% Aromatic
- ✘ High flashpoint solvents in addition to DF 2000
 - + Eco Solv
 - + Shell Sol D-60
 - + Drylene 800
 - + Ensolv

ENHANCED HYDROCARBONS

- ✘ Raise the flashpoint
- ✘ Boost cleaning capabilities
- ✘ Options
 - + Pure Dry—hydrofluoroether (HFE), perfluorocarbon (PFC)
 - + Impress & Gen-X—aliphatic glycol ethers

ADD' L SOLVENT OPTIONS

- ✘ GreenEarth—silicone based, D-5
- ✘ Solvon K-4—Dibutoxymethane/Butylal
- ✘ Liquid CO₂ & later Solvair (glycol butyl ether & CO₂)—*machines no longer available*
- ✘ DrySolv (npB)—limited use
- ✘ Rynex (glycol ether)—limited use, 3rd rendition

TODAY'S SOLVENT USE

× Perc	50-60%
× High Flash Hydrocarbon	40-50%
× GreenEarth	5-10%
× Solvon K4	5-10%
× Others	< 5%

WETCLEANING

- ✘ Not a viable 100% replacement to solvent processing
 - + Production costs
 - + Processing time
- ✘ Adjunct to solvent processing a necessity

EARLY DRYCLEANING MACHINE TECHNOLOGY



Transfer Machines
Separate washer and dryer

TODAY'S DRYCLEANING MACHINE TECHNOLOGY



Dry to Dry non-vented

- Tank holds the solvent
- Pump draws solvent into perforated stainless steel cylinder
- Solvent circulated through the cylinder
- Solvent goes through button trap to tank
- After washing solvent is drained & clothes spun
- After drying the solvent is distilled and returned to the tank
- New machines are completely enclosed

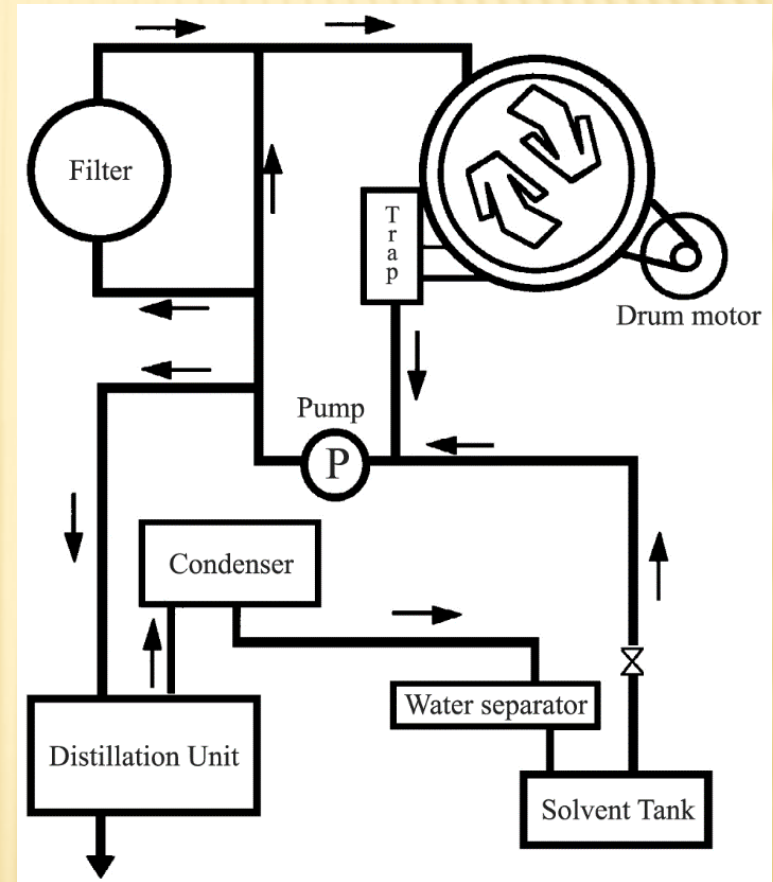


DIAGRAM OF MODERN DRYCLEANING PROCESS

REGULATORY CONCERNS FOR PERC ALTERNATIVES

- ✘ All combustible to some degree
- ✘ Most VOC's
- ✘ Most have no known health concerns
- ✘ Some have environmental concerns
- ✘ None have hazardous waste issues—*although industry recommends treat waste as hazardous*
- ✘ None have discharge concerns—*although industry recommends limiting discharge*

CLEANING PERFORMANCE FOR PERC ALTERNATIVES

- ✘ None perform as well as perc in terms of cleaning capability
- ✘ All provide adequate cleaning capability especially when combined with adequate detergents
- ✘ Some provide processing capabilities for additional types of garments—fragile, dye sensitive, “fancy”

PRODUCTION COMPARISON FOR PERC ALTERNATIVES

- ✘ All require extended processing time as compared to perc
- ✘ Spotting, finishing, assembly labor is only minimally increased, if at all
- ✘ Utility consumption is comparable

	GreenEarth GreenEarth Cleaning	Hydrocarbon R.R. Street & Co.	SolvonK4 Kreussler	Perc Dow	Rynex Adco	GenX Caied
Cycle Length (Minutes)	60	2 Bath - 55-65 1 Bath - 50-60	2 Bath - 70 min 1 Bath - 62 min	45	74	55-60
Wash Time (Minutes)	17	18-20	7- 10	15-20	7.5	4-8
Drying Time (Minutes)	35	28	48 w/cool down	30-35	60	25-30
Is a Specific Machine Required?	Class IIIA	Class IIIA	Class IIIA vacuum still	Class IV	K Series Class IIIA	Class IIIA
Fees/Licenses	\$2,500 – Annual	No	No	No	No	No
Proprietary products Required?	Many approved products available. Top Brands	No	Yes. Kreussler Products	No	Booster Sizing	No
Average Cost Per Gallon	\$21-\$24	\$13.95	\$30.70	\$25	\$36	\$29.41
Average Solvent Mileage (Pounds cleaned per Gallon)	1,500	1,500 to 1,800 Standard Class IIIA 4,000 K Series Class IIIA	4,500 minimum of .5% weight of load	750 to 1,000	3,000+	800 to 1,100
Recommended Waste Disposal*	Licensed waste hauler	Appropriate waste hauler	Licensed waste hauler	Licensed waste hauler	Regular waste hauler	Non-hazardous municipal waste
Number of Machines in U.S.	More than 900 U.S. 1,700 global	10,000+ U.S.	200 U.S. 450 global	36,000 U.S.	10 U.S. 13 global	800 U.S. 1,000 global
Any Major Issues?	None	None	None	Proper handling and disposal; Restrictions on location; Special reporting & Permitting	Residual solvent signature after drying	None
Rumors or Misconceptions	1. Does not clean 2. Banned in Canada	1. Does not clean	1.Odor of the solvent will be a problem	1. Banned 2. Unavailable 3. Stabilizer disappears when distilled	None	1.Doesn't need detergent
Top 3 Benefits	1. Favorable Regulatory Profile 2. Garment Manufacturers' Recommendations 3. Landlord Specified Locations	1. Cost effective 2. Virtually odorless 3. Ease of transition & ongoing operations	1. Exceptional Cleaning Performance 2. Unmatched solvent mileage 3. Environmental & occupational safety for the clients, staff, landlords & drycleaners	1. Safety 2. Proven performance 3. Economical	1. Better soil removal 2. Less re-runs 3. Great solvent mileage	1. Better performance for oil & water stain removal 2. Cheaper Spotting labor & chemical cost 3. Faster cleaning with no harsh smell

THANK YOU

Questions & Answers

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