PROFESSIONAL WET CLEANING GUIDEBOOK

PREPARED FOR **CALIFORNIA AIR RESOURCES BOARD**

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DISCLAIMER:

This Professional Wet Cleaning Guidebook is based on twenty years' experience and expertise of UCLA Sustainable Technology & Policy Program's Executive Director, Dr. Peter Sinsheimer, who developed a series of programs focused on evaluating the viability of professional wet cleaning, educating dry cleaners through demonstration workshops, working with dry cleaners switching to professional wet cleaning, developing incentives based on the technology's low toxicity and energy efficiency, development of green marketing, and conducting in-depth interviews with dry cleaners who made the transition to professional wet cleaning. In addition, Christina Batteate from STPP was instrumental in the development of this guidebook and used the wisdom generated in administrating the STPP Professional Wet Clean Demonstration Project in formatting essential information for dry cleaners about the benefits of professional wet cleaning and overcoming challenges they face in making a successful transition.

We also want to express our sincerest thanks to the first set of dry cleaners who had the courage to switch to professional wet cleaning and allowed us to evaluate the viability of their cleaners before and after their switch, as well as allowing us to document their transition. Their transparency in discussing the challenges they faced and how they were able to overcome these challenges allowed us to synthesize their experience into generalizable information that is the core substance of this guidebook.

The content of this Guidebook does not reflect the opinion of the University of California, Los Angeles or the California Air Resources Board.

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WHO IS THE INTENDED AUDIENCE FOR THIS GUIDEBOOK?

The guidebook is primary designed for dry cleaners considering making a transition to professional wet cleaning. That is, we assume that most readers are already garment care professionals familiar with processes associated with commercial cleaning of delicate apparel.

The information presented in the guidebook is intended to provide the essential facts that have been shown to be both necessary and sufficient for most dry cleaners who have taken a hard look at this dry cleaning alternative to make the decision to switch to professional wet cleaning.

The guidebook should be seen as a first step toward making a decision to switch. The guidebook recommends a number of additional steps that have been helpful to dry cleaners making this decision.

Beyond dry cleaners, the guidebook may also be useful to other stakeholders including: landlords, lenders, regulators, government agencies, utilities, cities, environmental health NGOs, and insurance carriers.

INTRODUCTION

WHAT IS PROFESSIONAL WET CLEANING?

Professional wet cleaning is a non-toxic, environmentally-friendly commercial process for cleaning delicate apparel and textiles typically labeled “Dry Clean” or “Dry Clean Only” in water using specially designed washers, detergents and additives, dryers, and finishing equipment.

The essential *innovation* of professional wet cleaning has been to create an industrial process that mechanically simulates delicate hand washing by enhancing and integrating the following set of technologies:

Professional Wet Cleaning Process

Professional Wet Clean Washers

- Premix water and detergent to proper concentration
- Ultra gentle agitation
- Low water level & temperature
- High extraction speed
- Computer controller to adjust inputs (eg, detergent, premixing, water level, temperature), operation (eg, drum cycle rotation), and outputs (eg, drainage).

Professional Wet Clean Dryers

- Precise moisture control
- Detects moisture in garments
- Prevents over-drying
- Computer controller to adjust moisture level, temperature, and drum rotation.

Professional Wet Clean Detergents

- Biodegradable cleaning agents
- Detergents designed to maximize cleaning power and minimize color change and shrinkage.
- Conditioners designed to restore smoothness.
- Sizing agents designed to restore body and for ease of finishing.

Professional Wet Clean Grade Tensioning Presses

- Enhances restoration of constructed garments
- Holds garments under tension, injecting steam to relax fibers and compressed hot air to dry the garments to original form.
- Computer controller to adjust degree of tension and timing of steam injection and/or compressed air injection.

HOW DOES PROFESSIONAL WET CLEANING DIFFER FROM DRY CLEANING?

Functionally, Dry cleaning and Professional Wet cleaning are the same — they are both commercial processes for cleaning and restoring delicate apparel and textiles typically labeled “Dry Clean” or “Dry Clean Only”. The difference is that the word ‘wet’ signifies commercial process using water as the solvent while the word ‘dry’ signifies a commercial process using any solvent other than water.

Wet cleaning, as defined by the Federal Trade Commission, is “a commercial process for cleaning products or specimens in water carried out by professionals using special technology (cleaning, rinsing and spinning), detergents, and additives to minimize adverse effects, followed by appropriate drying and restorative finishing procedures.”

This terminology of ‘dry’ meaning ‘not water’ is confusing to customers who often interpret the word ‘dry’ to mean that dry cleaning is a non-liquid/zero-moisture (aka ‘dry’) cleaning process. While reasonable, this of course is absolutely incorrect.

While the phase “Wet Cleaning” has long been used by dry cleaners to mean a commercial water-based method for cleaning delicate garment often labeled “Dry Clean” or “Dry Clean Only”, this term describes a process for cleaning very small batches of items without the use of specialized technology. In the 1990’s, with development of a large volume wet clean washers, dryers, specialized cleaning agents, and the integration of tensioning equipment the word “Professional” was added to the words “Wet Cleaning” to describe a commercially scalable system capable of cost-effectively processing the full range a delicate apparel labeled “Dry Clean” or “Dry Clean Only” in volumes comparable to dry cleaning.

Since most dry cleaners do practice wet cleaning with non-specialized equipment, this provides one path for dry cleaners to take a harder look at professional wet cleaning. (See section: Taking a Hard Look at Professional Wet Cleaning)

CAN I SUCCESSFULLY SWITCH TO PROFESSIONAL WET CLEANING?

Independent 3rd party studies[1,2,3,4,5] of dry cleaners switching to professional wet cleaning have shown the following:

⇒ **High Cleaning Effectiveness:** Able to successfully wet clean over 99.9% of garments previously dry cleaned.

⇒ **Higher Profit Margin:** Overall equipment and operating cost are lower in professional wet cleaning.

⇒ **Lack of Regulation:** Lowers the cost and increases production efficiency

⇒ **High Customer Retention:** Extremely high. Able to attract new customers based on increased quality of cleaning.

⇒ **Increased Customer Growth:** Many professional wet cleaners in operation over 10 years are able to sustain growth.

⇒ **Successful in Full Range of Locations:** Full range of markets, including extremely high end locations.

⇒ **Successful in Wide Range of Volumes:** From boutique to high volume production.

⇒ **Sustained Value of Business:** Able to sell as professional wet cleaner at a comparable price as dry cleaner shop based on similar volume and similar location.

⇒ **Simple Keys to Success:** Proper equipment, proper detergents, proper training, and willingness to learn.

WHY IS PROFESSIONAL WET CLEANING CONSIDERED ENVIRONMENTALLY FRIENDLY?

Compared to most dry clean options, professional wet cleaning has a superior environmental health profile:

- No potential adverse human health or environmental impacts associated with the cleaning solvent
- No air quality regulations or superfund contamination potential associated with the cleaning solvent
- No OSHA regulations associated with the solvent
- No fire hazard or regulations associated with the solvent

	Technology	Human Health & Environmental Hazard	Air Regulations	Health Regulations	Fire Regulations
👍	**Professional Wet Cleaning**	▪ None Identified	N/A	▪ Choose cleaning agents to minimize environmental impacts	N/A
	CO_2	▪ None Identified	N/A	▪Fee on CO_2 volume	▪ Permit
	Petroleum	▪Neurotoxicity/eye/skin/ respiratory irritant ▪ Persistent & aquatic toxicity concern ▪ Complex mixtures of concern	▪ Regulated ▪ Emits VOCs ▪ Registration	▪ Fee for hazardous waste generated	▪ Permit ▪ Combustible (Class IIIA)
	GreenEarth	▪ Suspected carcinogen & reproductive toxin ▪ Liver/immune/nervous system effects ▪ Persist in environment, detected in fish	▪ Regulated ▪ Registration	▪ Fee for hazardous waste generated	▪ Permit ▪ Combustible (Class IIIA)
👎	**Perchloroethylene (PCE)**	▪ Carcinogen (cancer-causing) ▪ Liver/kidney effects ▪ Neurotoxicity ▪ Persist in environment	▪ Regulated ▪ Permit ▪ Phase out	▪ Fee for hazardous waste generated	N/A
	1-Propyl Bromide (nPB)	▪ Reproductive and developmental toxin ▪Neurotoxicity/eye/skin/ respiratory irritant	▪ Regulated ▪ Permit	▪ Fee for hazardous waste generated	▪ Flam(Class I), NFPA rating 3

Table 1: Alternatives Assessment of cleaning technologies

Adapted from San Francisco Department of the Environment[6]

WHO RECOGNIZES PROFESSIONAL WET CLEANINGS' SUPERIOR ENVIRONMENTAL PROFILE?

- *United Stated EPA* encourages cleaners to switch to professional wet cleaning rather than use perc or hydrocarbon technologies.[7]

- *The Federal Trade Commission* recognizes professional wet cleaning to be an *environmentally friendly* alternative to dry cleaning and is considering developing a new "Professional Wet Clean" label for garments labeled "Dry Clean" or "Dry Clean Only."[8]

WHY SHOULD I CARE THAT PROFESSIONAL WET CLEANING IS ENVIRONMENTALLY FRIENDLY?

- Best for your health and your workers' health

- Best for your community

- Customers prefer professional wet cleaning over dry cleaning because it is recognized as environmentally friendly (*See* MARKETING YOURSELF AS A PROFESSIONAL WET CLEANER chapter)

- You can safely market your cleaners as environmentally friendly (*See* MARKETING YOURSELF AS A PROFESSIONAL WET CLEANER chapter)

IS THE QUALITY OF CLEANING IN PROFESSIONAL WET CLEANING COMPARABLE TO DRY CLEANING?

Yes! Comparable or better.

A series of independent 3rd party studies[1, 2, 3.4.5] of dry cleaners switching to professional wet cleaning have shown that with proper equipment and proper training, the success rate in wet cleaning 'Dry Clean' or 'Dry Clean Only' garments is over **99.9%** and comparable to when the cleaner was using a dry clean machine. For these cleaners, after switching to professional wet cleaning, less than **0.1%** of the 'Dry Clean' or 'Dry Clean Only' garments brought in by customers were classified as a failure; either because the cleaner was not able to clean the garment (rejects), ruined the garment, or the customer returned the garment due to poor quality of cleaning. (See Table 2)

In terms of customer response to the switch, not only were these cleaners able to retain their existing customers but were able to grow their customer base more rapidly after switching to professional wet cleaning and before advertising their cleaners as environmentally friendly. Cleaners attributed this uptick in new customers to an increased quality of cleaning. (See Table 2)

Table 2: Quality of Cleaning of Dry Cleaners Switching to Professional Wet Cleaning

Quality of Cleaning Criteria		***When Dry Cleaning***	***After Switching to Professional Wet Clean***
Success/ Failure Rate	'Dry Clean' or 'Dry Clean Only' garment successfully processed	>99.9%	>99.9%
	'DC' or 'DCO' garments rejects	<0.1%	<0.1%
	'DC' or 'DCO' garments ruined		
	'DC' or 'DCO' garments returns		
Customer Response	Customer retention	Standard	Extremely High
	New customer base	Standard	Accelerated Before Green Marketing

CAN I CLEAN EVERYTHING THAT I COULD WITH DRY CLEANING?

Yes! A series of studies[1, 2, 3, 4, 5] have shown that perc dry cleaners who switched to professional wet cleaning continue to operate as normal. Just like with dry cleaning, there are some items that you will need to be more careful of when processing, but this does not mean that you cannot do them. See Table 3 below.

Table 3: Fibers and Products easily Professionally Wet Cleaned

Fiber Types	**Product Types**
Angora	Blouses
Cashmere	Comforters (wool, silk, camel hair)
Cotton & Cotton-blends	Drapes (wool, silk, leather, velvet)
Corduroy	Dresses
Khakis	Dress shirts
Faux-fur	Leather (gloves, hats, pants, purses)
Fur	Polo shirts
Leather	Shawls
Linen	Slacks
Natural fibers (hairs)	Skirts
Natural skins	Suits
Polyester & Polyester-blends	Sweaters
Rayon	Ties
Satin	Wedding Gowns
Silk	
Spandex	
Suede	
Triacetate	
Velvet	
Viscose	
Wool	

*Above are items commonly wet cleaned (based on a survey of wet cleaners from across the U.S. using different equipment types and with varying years of experience)

IS DRY CLEANING NEITHER "DRY" NOR "CLEAN"?

Dry cleaning is technically not "dry" in that all dry clean solvents are a liquid during the cleaning process. Just like in a water-based process, the word "dry" was put in front of the world "clean" to make a distinction from the use of water as a cleaning solvent.

In terms of whether dry cleaning is "clean", one cleaning quality benefit identified by most dry cleaners who have switched to professional wet cleaning is that in professional wet cleaning, fresh solvent — softened tap water — is always used throughout the washing process. While all dry clean machines are capable of using cleaned solvent every load, as explained below, few cleaners actually do so. Most dry cleaners use dirty solvent when cleaning their customers' garments.

In dry cleaning, solvent drained during the wash cycle and solvent evaporated during the dry cycle is collected for reuse. The machine's distillation system functions to regenerate "clean" solvent by removing impurities that have contaminated the solvent during the cleaning process — such as soils, stains, dyes, etc.

While equipment vendors often recommend that dry cleaners distill the solvent after every load, a process known as "continuous distillation", in practice very few dry cleaners continually distill. This is because continuous distillation is very expensive, it uses a substantial amount of energy, reduces solvent life, increases hazardous waste generation, and increases maintenance and shortens the life of the machine's distillation system as well as vapor recovery system. (See EQUIPMENT & CLEANING AGENTS chapter for further discussion). In addition, increasing distillation also increases the adverse human health impact to dry clean operators who have to clean out hazardous materials from the distillation system more frequently.

Given the high cost of continuous distillation, only very high-end cleaners, who are able to pass this cost onto their customers, can afford to distill their solvent after every drain cycle and dry cycle.

To reduce distillation costs, most dry cleaners distill their solvent once a day, once a week, or less frequently. In other words, standard operating practice at dry cleaners is to process customer apparel in various degrees of un-distilled/used/dirty solvent. To do this, two storage tanks are typically dedicated to un-distilled solvent for reuse—one that is less contaminated which is used for lighter-colored apparel and one that is more contaminated used for darker-colored apparel. The idea here is that re-deposited contaminants will be more noticeable to customers on lighter-colored apparel, hence the use of solvent from the less polluted storage tank. Conversely, re-deposited contaminants are less noticeable to customers on darker apparel, hence the use of solvent from the more polluted storage tank.

Since distilled dry clean solvent is clear, dry cleaners will often schedule distillation by looking into the two tanks through the large window in the front of the dry clean machine to determine how dark (aka dirty) the solvent has become.

This trade-off in dry cleaning between reducing distillation costs resulting in reduced quality of cleaning is avoided in professional wet cleaning since solvent distillation is no longer needed.

Figure 1: Image depicting dry cleaning solvent tank and distillation system.

HAVE STANDARD CLEANING METHODS BEEN DEVELOPED FOR PROFESSIONAL WET CLEANING?

Yes. Over the last 20 years, the experience and expertise developed by dry cleaners converting to professional wet cleaning have resulted in standard wet cleaning methods sufficient to successfully process the full range 'Dry Clean Only' and 'Dry Clean' labeled garments.

As with dry cleaning, standard cleaning methods are based on a combination of specific cleaning equipment, specific cleaning agents, and the specific skill set of the cleaners.

The International Standardization Organization (ISO) used the development of professional wet cleaning as a basis for creating a set of three 'Professional Wet Clean' care labels each associated with a particular professional wet cleaning instruction.

ISO finalized their 'Professional Wet Clean' care labels and instructions in 2007. The ISO care label is permitted for use in the following countries: Austria, Belgium, Brazil, the Czech Republic, Denmark, Finland, France, Germany, Great Britain, Greece, Italy, the Netherlands, Portugal, Slovenia, Spain, Switzerland, Tunisia, and Turkey.

The United States Federal Trade Commission (FTC), who has responsibility for care labeling in the United States, has recommended adopting the ISO 'Professional Wet Clean' care label system for the US. The FTC is currently considering whether to allow or require apparel manufacturers to use a 'Professional Wet Clean' label where appropriate.

IS IT LEGAL TO PROFESSIONALLY WET CLEAN A GARMENT LABELED 'DRY CLEAN' OR 'DRY CLEAN ONLY'?

The Federal Trade Commission, who is responsible for developing and enforcing the Care Label Rule in the United States, has made it clear that a professional cleaner is not breaking the law by professionally wet cleaning a garment labeled 'Dry Clean' or 'Dry Clean Only.'

> "…the (care label) rule does not require the dry cleaner to do what's on the label. He is not breaking the law if he chooses to do something else."[9]

That said, in the very rare cases when a customer takes a professional cleaner to small claims court claiming the cleaners ruined a garment, judges will side with a cleaner about half of the time if the cleaner states that they dry cleaned a garment labeled 'Dry Clean' or 'Dry Clean Only.' It has been the experience of dry cleaners switching to professional wet cleaning that once a judge learns that a 'Dry Clean' or 'Dry Clean Only' labeled garment had been professionally wet cleaned, they immediately rule in favor of the customer stating that the cleaner cleaned the garment differently than what was stated on the care label.

This issue would be resolved by the FTC requiring that all items carrying a professional clean label that can be successfully wet cleaned be labeled 'Professional Wet clean.'

IS PROFESSIONAL WET CLEANING REALLY MORE PROFITABLE THAN DRY CLEANING?

Yes! The same 3rd party studies[1, 2, 3, 4, 5] evaluating the cleaning quality of dry cleaners switching to professional wet cleaning also evaluated operating costs before and after the cleaners switched.

After dry cleaners switch to professional wet cleaning, they experience a substantial reduction in their operating costs.

Operating costs consistently lower in professional wet cleaning include:

- Average annual equipment cost
- Maintenance cost
- Solvent cost
- Hazardous waste disposal cost
- Electricity and natural gas cost
- Regulatory compliance cost

The only cost that is systematically higher in professional wet cleaning is detergent cost.

Overall, operating costs were **33% lower** after switching from dry cleaning to professional wet cleaning. This reduction in operating costs in professional wet cleaning has been shown in a wide range of locations, including high-end stores as well as high-production operations.

Because cleaners who switched typically do not change the prices they charge customers, the 33% reduction in operating costs means that their profit margin increased by 33%.

How much additional profit does this amount to? If total operating cost of processing 'Dry Clean' or 'Dry Clean Only' garment is $3, a 33% reduction would reduce total operating costs to $2 per garment. For a very small shop process 10,000 pieces per year, this amounts an additional profit of $10,000/yr. For a moderate shop processing 40,000 pieces per year, profit would increase $40,000/yr. For a relatively high volume shop processing 100,000 pieces per year, profit would increase $100,000/yr.

Most of the higher costs in dry cleaning are associated with operating pollution control equipment. Because water is the solvent used in professional wet cleaning, no expensive pollution control equipment is used, such as distillation and vapor recovery. This pollution control equipment substantially increases the capital equipment cost of dry cleaning machines as well as increases operating costs. Flammable solvents such as hydrocarbon and Green Earth require fire suppression equipment, further increasing the capital equipment cost of these solvent machines.

Precisely because professional wet cleaning is considered a benign, low polluting, energy efficient, environmentally-friendly technology, government incentive programs have been developed to further reduce capital cost of purchasing professional wet cleaning equipment, to incentivize cleaners to switch to this environmentally friendly technology. (For additional information, see Equipment section)

Dry cleaners switching to professional wet cleaning have increased profit by 1) reducing operating costs while keeping revenues constant, and 2) increased their annual profit by increasing their customer base more rapidly than when they were dry cleaning. While this increase in customer base has primarily been attributable to the increased quality of cleaning, green marketing has the potential to further increase the profit of cleaners switching to professional wet cleaning.

TAKING A HARD LOOK AT PROFESSIONAL WET CLEANING

There are clear advantages to professional wet cleaning, but how can you take a harder look?

The remaining sections of this guidebook provide a harder look. Beyond this guidebook, there are a number of other ways to take a closer look at professional wet cleaning. The below list provides a good starting point.

- Contact a manufacturer or distributor of professional wet cleaning equipment (See ADDITIONAL RESOURCES)

- Contact or visit a professional wet cleaner (distributors should provide a list) or visit *"Find a Green Cleaner"* at http://www.stpp.ucla.edu/greenCleaners

- Get in touch with the Professional Wetcleaners Association at http://www.professionalwetcleaners.org

- Test professional wet cleaning in your commercial laundry machine
  - Contact detergent distributor to order professional wet clean detergents
  - Run industrial washer on gentle and premix detergents with water before loading in items.
  - Use timer on dryer to prevent over drying
  - Use professional judgment about type of items to test

- Attend a professional wet cleaning workshop. Workshop sponsors may include:
  - Trade associations
  - Government agencies
  - Equipment manufacturers or distributors
  - Detergent manufacturers or distributors
  - Utilities
  - Universities

- Attend an apparel care trade show and visit booths sponsored by professional wet clean equipment and detergent manufacturers and distributors

- Preview professional wet cleaning on the web. For example, we produced a video at a demonstration workshop that shows the professional wet cleaning process and interviews a number of dry cleaners who switched to professional wet cleaning.

Professional Wetcleaning Demonstration 2013

https://www.youtube.com/watch?v=i2z_ySLcMHk

As always, when reviewing any material, be mindful of the credibility of the source.

EQUIPMENT & CLEANING AGENTS

PROFESSIONAL WET CLEAN EQUIPMENT VS. DRY CLEAN EQUIPMENT

Commercial cleaning of apparel, whether dry cleaning or professional wet cleaning, requires equipment to perform specific work, including:

- a washing machine in which solvents mixed with cleaning agents are immersed into textiles and tumbled to remove stains and soils
- a drying process to remove the solvent from the textile
- a restoration process which uses mechanical processes and direct ironing to put the textile back into its intended shape and form.

Professional wet cleaning typically uses separate machines for washing and drying. While dry cleaning originally transferred garments from a washing machine to a separate dryer, the toxicity of dry clean solvents emitted from both the washer and from the garments when transferring a load to the dryer was substantial and health regulations forced dry clean machine manufacturers to incorporate both the washing function and drying function into the same machine, which became known as a dry-to-dry machine.

PROFESSIONAL WET CLEANING'S ADVANTAGE OF SEPARATE WASHING AND DRYING MACHINES VS. DRY-TO-DRY MACHINE

There are clear advantages to a transfer system including:

- *Increased throughput time* – having separate drums for washing and drying allow these two activities to happen at the same time vs. having to wait until a complete dry-to-dry cycle is complete before putting in the next load.
- *Optimum ratio of washer and dryer drum size* – optimum dryer capacity should be double the washer capacity, increasing garment contact with air during drying which accelerates dry time and reduces garment damage due to excessive tumbling and excessive heat.
- *Increased options for the drying process* – being able to remove apparel from washer prior to machine drying allows an operator the option of hang drying items rather than machine dry items. In addition, once transferred to the dryer, items can be removed before all moisture is removed; something not permitted in dry cleaning.
- *Increased flexibility during machine repair* – having a separate machine for washing and drying allows either machine to operate while the other is being repaired.

TENSIONING FINISHING INCREASES QUALITY AND SPEED

Tensioning finishing equipment is required for dedicated professional wet cleaning in order to put tailored and structured garments back to their original shape and form.

While tensioning finishing is not required for dry cleaning, it has become increasingly popular among higher end dry cleaners because the automated finishing of tailored items increases the reliability of a high quality finish and can also increase production efficiency.

NO POLLUTION/FIRE CONTROL EQUIPMENT REQUIRED IN PROFESSIONAL WET CLEANING

Due to the environmentally benign nature of professional wet cleaning, no pollution control systems are required — such as a distillation system, vapor recovery system, or fire suppression system.

Not only does professional wet cleaning avoid the capital and operating cost associated with these pollution/fire control systems but also avoids the trade-off between cleaning quality and operating cost associated with how often dirty solvent is distilled. (See Dry Cleaning Neither 'Dry' Nor 'Clean' section above).

FEATURES OF PROFESSIONAL WET CLEAN EQUIPMENT

In the early 1990s, two high-end European industrial laundry equipment manufacturers, the German company **Miele** and the Swedish company **Electrolux,** worked together to develop professional wet cleaning as an environmentally friendly substitute to dry cleaning.

As professional wet cleaning has increased in popularity, most industrial laundry equipment manufacturers have modified their equipment to create a line of professional wet clean washers and dryers. In addition, most commercial detergent manufacturers have developed a line of cleaning agents designed specifically for the professional wet clean process. Finally, most tensioning finishing companies have designed these presses for professional wet cleaning. The points below summarize the minimum requirements for a professional wet clean system. Table 4 and Table 5 describe required and suggested optional features that increase the quality of cleaning.

Professional Wet Clean Washers

- Premix water and detergent to proper concentration
- Ultra gentle agitation
- Low water level & temperature
- High extraction speed
- Computer controller to adjust inputs (eg, detergent, premixing, water level, temperature), operation (eg, drum cycle rotation, and outputs (eg, drainage).

Professional Wet Clean Dryers

- Precise moisture control
- Detects moisture in garments
- Prevents over-drying
- Computer controller to adjust moisture level, temperature, and drum rotation.

Professional Wet Clean Detergents

- Biodegradable cleaning agents
- Detergents designed to maximize cleaning power and minimize color change and shrinkage.
- Conditioners designed to restore smoothness.
- Sizing agents designed to restore body and for ease of finishing.

Professional Wet Clean Grade Tensioning Presses

- Enhances restoration of constructed garments
- Reshape garments to original form.
- Holds garments under tension, injecting steam to relax fibers and compressed hot air to dry the garments to original form.
- Computer controller to adjust degree of tension and timing to steam injection and/or compressed air injection.

PROFESSIONAL WET CLEAN WASHER AND DRYER FEATURES

This chapter describes specific features, specifications, and optimizing factors associated with Professional Wet Cleaning (PWC) washers and dryers. When shopping for a new machine, keep in mind that different optional features will yield different results for your process. Features that are requirements for a professional wet clean system are indicated with a ** *(Required)* next to the feature.

PROFESSIONAL WET CLEAN WASHERS: PHYSICAL FEATURES, OPTIONS, AND FUNCTIONS

Table 4: Professional Wet Clean Washers: Suggested Features, Options and Functions

Physical Features	**Options**	**Ideal Optional Feature**
Equipment Design		
Type of mount	Hard mount or Soft mount	Soft mount allows for increased extraction speed
Drum size (load capacity)	12 lb-200 lb.	Based on daily volume
Drum design	Generic or Specific for PWC	Smaller holes allow increased extraction speed
Pre-mixing chamber for water & detergents ***(Required)*	Passive mix or Active mix	Active mix assures proper concentration
Automatic detergent dispensing inputs ***(Required)*	Number of inputs	More inputs increases options
Water heating coils	Yes/No	Allows for more precise temp control
Computer control ***(Required)*		
Pre-mix detergent concentration	Control mix time	Increases precision of concentration
Water temperature	Preset or precise	Precise allows for better match with detergent flexibility for future change
Water volume	Preset or precise	Precise allows better match with detergent flexibility for future change
Drum Speed		
• Agitation		
– Direction of rotation	Preset or precise	Precise allows better match with detergent flexibility for future change
– Speed of rotation	Preset or precise	
– Degree of rotation	Preset or precise	
– Dwell time	Preset or precise	
• Extraction speed	500-1,300 rpm	Dependent on type of mount and drum design; more speed options is better
Preset programming	Number of presets	More presets allow for more options

Table 5: Professional Wet Clean Dryers: Suggested Features, Options and Functions

Physical Features	Options	Ideal Optional Feature
Equipment Design		
Drum Size	25 lb-200 lb.	Based on daily volume. Sized to double capacity to wet clean washer
Heat Source	Natural gas	Lowest operating cost, less precise heating than electric or steam
	Electricity	Highest operating cost, more precise heating than natural gas
	Steam	Mid operating cost, more precise heating than natural gas, requires boiler to generate heat
Residual Moisture Control ***(Required)*	In-drum sensor	Required to prevent over drying
Drum Design	Minimizes impact of tumbling	Specialized design prevents crease formation
Reverse Tumbling ***(Required)*	Yes/No	Decreases garment tangling
Computer Control ***(Required)*		
Temperature Control	Preset or precise	More precise control allows more flexibility and greater adaptation to future changes in apparel, cleaning agents, washing technique, and finishing technique
Time Dry	Preset or precise	
Drum Speed Control	Preset or precise	
Preset Programming		
• Time/Temperature	Number of options	Increased number of options allows more flexibility and greater adaptation to future changes
• Residual Moisture	Number of options	

PROFESSIONAL WET CLEAN FINISHING EQUIPMENT FEATURES

Professionally wet cleaned garments can be finished using either conventional pressing machines or specialized tensioning finishing equipment. Tensioning presses are designed to restore shape, size, and form of garments by mechanically blocking garments into their widthwise and lengthwise form, blowing steam into the garment to restore the original shape, and blowing dry air to dry the garment. Sensors detect the proper blocking length and width. For each garment placed on the press, the key optimization factor with respect to functionality of tensioning equipment is the presses' blowing strength — rating at which steam and air can be blown into the garment during the blocking process.

Many well respected tension finishing companies who have long sold their presses to the dry clean market have demonstrated the effectiveness of their tensions presses in dedicated professional wet clean operations.

PROFESSIONAL WET CLEAN CLEANING AND SPOTTING AGENTS

In the United States and in Europe many of the leading professional cleaning agent manufactures have developed a line of detergents, conditioners, and sizing agents specifically designed for professional wet cleaning. In addition, spotting agents traditionally designed for professional laundry operations have been adapted for professional wet cleaning.

PROFESSIONAL WET CLEANING: CLEANING AGENTS

The computer controller on the professional wet clean washer is programmed to dispense the optimal amount of cleaning agents into the cleaning process to maximize the cleaning effectiveness while protecting fibers from the adverse impacts of water. Three types of cleaning agents are used, each serving a different function.

Detergents: Specialized wet cleaning detergents are formulated with additives to maximize cleaning power to remove soils and stains, while minimizing shrinkage and color loss. Detergents are dispensed during the initial wash cycle.

Conditioners: Wet cleaning conditioners smooth and soften garments, and coat fibers to minimize shrinkage. They are typically dispensed during second wash cycle.

Sizing Agents: Wet cleaning sizing agents add body to garments and prevent creases, which helps with finishing. They are typically paired with the conditioner during the second wash cycle. They add back body to garments and improve finishing.

Combinations: Some chemical manufacturers offer a conditioner and sizing agent in one or a detergent, conditioner, and sizing agent in one.

Specific Information on Chemical Manufacturers: Additional information that should be sought from chemical manufacturers includes: availability and prices of detergent dispenser pumps, cost of shipping, refund policies, and support services.

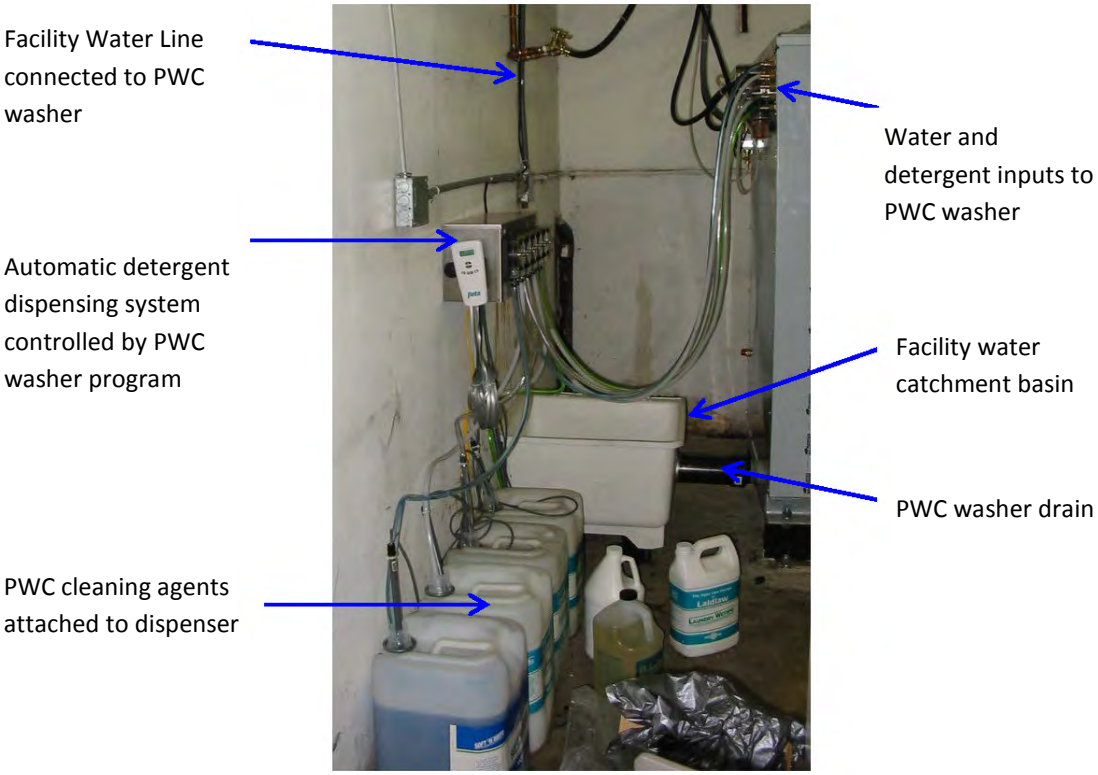


Figure 2: Image depicting cleaning agents connected to pump, PWC washer, and water entry and exit to system.

SPOTTING AGENTS

In addition to cleaning chemicals, specially formulated biodegradable pre-spotting agents for professional wet cleaning have been developed, since waste water from wet cleaning machines are disposed through municipal sewer drains. Post-spotting agents are used in cases where stains remain on the garment after pre-spotting and/or washing.

SELECTION OF PROFESSIONAL WET CLEANING EQUIPMENT AND CLEANING AGENTS

Given the number of companies selling professional wet clean washers, dryers, tensioning finishing equipment, and cleaning agents, what criteria are important to consider in making a decision about what equipment to purchase and what cleaning agents to use?

The table below provides a check (√) next to key criteria cleaners have used in making their decision about which equipment to select and which cleaning agents to select. Below the table are descriptions of what makes these criteria important.

Table 6: Priority Criteria for selecting equipment

Priority Selection Criteria			
	PWC Washer/Dryer		
Machine capacity – for PWC & Laundry	√		
Specifications and Features	√		
		Tensioning - Finishing	**PWC Cleaning Agents**
Price ($)	√	√	√
Build quality/reliability	√	√	√
Ease of use	√	√	√
Warranty	√	√	
Local distributor capacity			
• Availability	√	√	√
• Delivery	√	√	√
• Installation	√	√	√
• Programming	√	√	√
• Training	√	√	√
• Service	√	√	√
• Removal of DC machine	√		
• Coordinate complete system (Turn-key)	√		
• Willingness to provide references	√	√	√

The first two criteria – machine capacity and specifications-- relate specifically to the PWC washer and PWC dryer.

Machine capacity: PWC machine capacity is usually the first factor cleaners consider. For both the washer and dryer, drum size determines the capacity rating. Typically manufactures rate the capacity based on laundry volume and list the PWC capacity at ½ the laundry capacity (e.g., 60 lb. laundry/30 lb. PWC). Dryer capacity is typically paired with the washer laundry capacity (e.g., 60 lb. laundry/60 dryer capacity).

When determining the size washer to purchase it is important to consider that the average wash time for a PWC load is 20-25 minutes after which the garments are transferred to the dryer where the after drying time is less than 15 minutes. This means that a machine with a 30 lb. PWC capacity is able to easily process 60 lbs. /hour. In terms of specifications of the PWC washer and dryer, which are listed in Table 4 and Table 5, higher quality specifications and features typically increase the price of the system.

Price: For both the PWC washer/dryer system as well as the tensioning finishing machines, price, the third criteria listed, is strongly associated with next three criteria – build quality/reliability, ease of use, and warranty. It is important to know that manufacturers are required to provide a list price for equipment. This provides a good starting point for a discussion with a manufacturer.

Local Distributor Capacity: As with dry cleaning, local distributor capacity, which is governed by nine sub-criteria, is clearly a critical consideration when selecting equipment; in this case, a PWC washer and dryer, a set of tensioning finishing equipment, and specific cleaning agents. The first six of these sub-criteria are ordered sequentially, from availability, delivery, installation, programming, training, and ongoing service. Some professional wet clean washer and dryer distributors also provide a turn-key bid including: arranging the removal of the dry clean machine, providing a complete system, installing the system, providing training, and ongoing service.

When considering different local distributors, willingness of the distributor to provide references to other cleaners installing professional wet clean equipment (the last sub-criteria listed here) is an extremely important factor. Contacting these references not only establishes the credibility of the distributor but also the quality of the equipment and/or cleaning agents.

The Additional Resources chapter provides a partial list of professional wet clean washer and dryer manufacturers, tensioning finishing manufacturers, and cleaning agent manufacturers.

INCENTIVES FOR PROFESSIONAL WET CLEANING

To encourage dry cleaners to switch to environmental friendly professional wet cleaning, government agencies have developed incentives for professional wet cleaning.

In California a series of incentives have been developed:

AB998: California legislation created a $10,000 incentive to perc dry cleaners switching to non-toxic and non-smog forming alternatives. The only two alternatives approved are professional wet cleaning and CO_2 dry cleaning. This incentive is administered by the California Air Resource Board. Visit www.arb.ca.gov/toxics/dryclean/ab998.htm for more information on their program. Their website also offers links to several *Additional Financial Assistance Programs* such as:

- Local Air Districts
- San Francisco Department of Environment
- Opportunity Fund
- Minority Business Development Agency
- United States Small Business Administration
- California Small Business Loan Guarantee Program
- California Capital Access Program
- Cash Advances
- Revolving Loan Funds (RLF): Contact your local city and county government offices for more information. RLFs are handled by your local Department of Economic Development, Department of Commerce, or similar agency.

SCAQMD Financial Incentive Program: A $10,000 incentive is available to cleaners in the greater Los Angeles region who purchase a full set of professional wet cleaning equipment. Visit: www.aqmd.gov/home/programs/business/business-detail?title=dry-cleaner-grant

LADWP Custom Performance Program (CPP): For dry cleaners switching to professional wet cleaning in the city of Los Angeles, a $4,000 incentive is available from the Los Angeles Department of Water and Power. Visit: www.ladwp.com/ladwp/faces/ladwp/commercial/c-savemoney/c-sm-rebatesandprograms/c-sm-rp-cpp

SMUD - Professional Wet Cleaning Incentive (Sacramento County): For dry cleaners switching to professional wet cleaning in the Sacramento County, a $4,200 incentive is available from the Sacramento Municipal Utility District. Visit:
https://www.smud.org/en/business/save-energy/rebates-incentives-financing/dry-cleaning-wet-cleaning.htm

INSTALLATION AND PROGRAMMING

As in dry cleaning, when an old machine is replaced with a new machine, when replacing an old dry clean machine with new professional wet clean equipment, the distributor of the equipment typically wraps the cost of removing the old dry cleaning and the installation of the new professional wet clean equipment into the total purchase cost.

Often, the professional wet clean washers and dryers are physically placed where the old dry clean machine once stood. Sometimes cleaners take the opportunity to rearrange their plant to better optimize production.

PROFESSIONAL WET CLEAN MACHINE PROGRAMMING

Once installed, equipment must be programmed for use in a professional wet clean system. Because PWC equipment can also be used to process laundry items (e.g. dress shirts, khaki pants), and because most PWCers use their system for both types of garments, best that each piece of equipment in the system be programmed for both uses.

Initial programming is typically done by both the equipment distributor and the cleaning agent supplier. After initial programming, the professional wet cleaner will often modify programs that they believe increase the efficiency and effectiveness of their particular operation.

PROGRAMMING THE PROFESSIONAL WET CLEAN WASHER

The PWC washer's computer controller needs to be programmed to fit the range of apparel the cleaner expects to process as well as the specific brand of cleaning agents the clean has chosen to use.

The first step in creating specific PWC programs is to understand the particular dilution recommendations for the specific set of cleaning agents selected. Dilution ratios vary widely between different manufacturers. Some cleaning agents, that are twice as expensive per volume as others, require half the product per volume water.

The second step, after adjusting for the specific concentration level, is to create specific PWC programs based on the sensitivity of the garment to the cleaning process.

In developing their care label instruction for professional wet cleaning, the International Standards Organization (ISO) created three 'Professional Wet Cleaning' care labels to reflect the degree of sensitivity of the apparel item:

General Description	Symbol	Specific Instruction
Normal Professional Wet Clean program		**Professional wet-cleaning.** Normal wet cleaning methods with no restrictions.
Gentle Professional Wet Clean program		**Mild professional wet-cleaning.** Wet cleaning technique for sensitive textiles with reduced mechanical action.
Very Gentle Professional Wet Clean program		**Very mild professional wet-cleaning.** Wet cleaning techniques for very sensitive textiles with much reduced mechanical action.

The care label instruction associated with each level is associated with specific washing and drying protocols. The three wash protocols represent the minimum number of professional wet clean wash programs.

In practice, PWCers often create a number of additional programs. For example:

- Specific programs by fiber type (e.g. wool, silk, leather)
- Specific programs by fiber type/garment type (e.g. wool jackets)
- Specific programs by volume (e.g. 1/2 load, 1/4 load)

Figure 3: Program interface on PWC washer or dryer

In some cases, equipment manufacturers present PWC programs (e.g. Miele — show chart). Even in these cases, these pre-set programs need to be adjusted based on the particular cleaning agents being used.

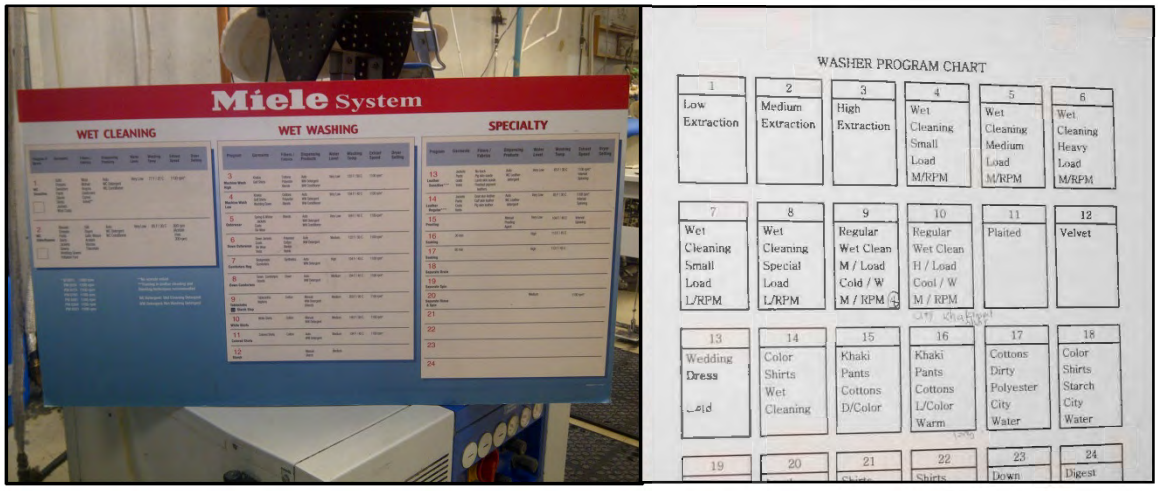


Figure 4: Sample program charts provided by equipment manufacturers

PROGRAMMING THE PROFESSIONAL WET CLEAN DRYER

As with the PWC washer, the PWC dryer can also double as a laundry dryer and therefore separate programs need to be developed for each.

PWC dryer programs need to be in sync with PWC washer programs. The sensitivity of the garment is not only a function of the exposure environment of the washer but also a function of the exposure environment of the drying process. ISO developed three drying practices associated with each care label instruction. (See Table 7)

An essential characteristic of professional wet clean drying is that a percentage of moisture (i.e. residual moisture) is purposefully left on the garment after drying to prevent garment damage. For most solvent-based dry cleaning systems, since the moisture in these systems are regulated chemicals, the dry cycle of the dry clean program is designed to remove as much of this solvent/moisture as possible. To get to this very low level of residual moisture, dry clean dry cycles are extremely long compared to professional wet cleaning. This not only uses a substantial amount of energy but, tumble drying apparel for extended periods of time is harmful to the garment.

As with PWC wash programming, in practice, PWCers develop a range of techniques for maximizing the effectiveness and efficiency of the drying process. For example, some PWCers tumble dry jackets with no heat for a couple of minutes after washing and then air dry the garment until the next day, when it is finished in the

tensioning press. Other PWCers place jackets on the tensioning press immediately after washing and let the garment air dry over night before a final finish.

Table 7: International Standard Organization (ISO) procedures for Professional Wetcleaning

ISO Category	Wetcleaning procedure	Drying Procedure	Typical Fibers
NORMAL Professional wet-cleaning *(no restrictions, like a regular laundry program)*			
	water at **104°F (40°C)**, but with reduced mechanical action	Tumbler drying to residual moisture less than **3%**	Anything non-sensitive cottons and cotton-blends
MILD Professional wet-cleaning *(sensitive textiles with reduced mechanical action)*			
	water at **86°F(30°C)** in a specialized washing drum with specialized additives	Specialized tumbler drying at **140°F (60°C)** to residual moisture of approximately **15%**	Light silks, cashmere and cotton/wool/cashmere blends, Silk, rayon, satin, triacetate, viscose, acrylics, silks, and crepes
VERY MILD Professional wet-cleaning *(very sensitive textiles with much reduced mechanical action)*			
	water at **86°F(30°C)** in a specialized washing drum with specialized additives	**2 minutes** in specialized tumbler drying at **104°F (40°C)** as a maximum and followed by air drying	High end-suits, 100% wool, cashmere, leather trim, beading, very sheer items, angora, velvet, polyvinylchloride (PVC), modacrylic, and novelty tweeds

From: International Standard Organization. (2003) ISO 3175-4:2003 Textiles- Professional care, drycleaning and wetcleaning of fabrics and garments- Part 4: Procedure for testing performance when cleaning and finishing using simulated wetcleaning.

PROFESSIONAL WET CLEAN PROGRAMMING FOR TENSIONING FINISHING PRESSES

Programming for the tensioning finishing presses is dependent on how the garment was washed and the specific technique used for drying.

Since the first step in tensioning pressing is to blow steam into the garment, the amount of steam needed depends on the amount of residual moisture left on the garment prior to finishing. For garments with more moisture retained, less time is need during the steam phase. Conversely, drier garments require more steam to block the garments back to their original form.

The amount of dry time is also a function of residual moisture absorbed from the steam step and any residual moisture that remains after the drying stage is complete.

Since water is the solvent used in professional wet cleaning, inhalation of water vapor evaporated during pressing has no adverse impact on the presser. By contrast, evaporation of any residual dry clean solvent during pressing can have a significant adverse health impacts on pressers.

Figure 5: Images depicting tensioners alone and while restructuring jacket and pants with air and hot steam.

TECHNICAL TRAINING

WHO PROVIDES TECHNICAL TRAINING?

As with training in dry cleaning, typically the equipment distributor arranges for both equipment programing and professional wet clean training on the equipment in particular as well as on the integrated professional wet cleaning process.

In cases where one distributor is used to purchase all equipment, the one distributor will usually coordinate comprehensive training. In cases where the cleaner chooses the initial cleaning agents, the distributor of the cleaning agents will both program the washer and provide technical training on washing techniques. In cases where different distributors are used to purchase the wash/dryer system and the tensioning finishing equipment, the two different distributors typically coordinate programming and training on their specific equipment.

Figure 6: Equipment distributor programming the washer controls and training the cleaner.

Because professional wet cleaning is an integrated system, usually having one trainer teach each part of the system works better than having a number of trainers train on different parts of the system. As discussed in EQUIPMENT & CLEANING AGENTS chapter, when vetting different equipment distributors it is useful to ask for references of professional wet cleaners who purchased their equipment. Contacting these references is useful not only to evaluate the quality of the specific equipment but also the quality of the other services provided by the distributor, including technical training.

When negotiating the price with a distributor for purchase of the professional wet cleaning system and any additional services – such as dry clean machine removal, professional wet clean equipment installation and programming – it is essential to understand what training the distributors will be providing. This includes the

content of the training on each piece of equipment, the minimum number of hours of training, the specific person providing the training, the language skills of the trainer if the equipment operators do not speak fluent English, the extent that follow-up training is provided, and most importantly, the overall quality of the training.

Besides the training provided by the distributor, there are consultants who provide professional wet cleaning training on different types of equipment. When using this option, it is also important to ask for references, to verify if the consultant is familiar with the specific professional wet cleaning equipment you have purchased, whether the language skills of the trainer match the owner and operators of the equipment, and the overall quality of the service.

Figure 7: Equipment distributor training cleaner how to sort garments

WHAT SHOULD BE COVERED IN COMPREHENSIVE PROFESSIONAL WET CLEAN TRAINING?

Below is a table of each of the critical steps in professional wet cleaning and the general training topics associated with each step. Training topics are grouped by process stage.

Table 8 Process stages to be covered during Technical Training

Process Stage	General Training Topics
Sorting and Pre-Testing	Separate loads by preset programs, fiber, fabric, weight, color
	Identify garments for specialized processing (e.g. loose knit, ties, multi-colored silk)
	Identify potentially challenging garments requiring testing (e.g. color fastness testing for garments likely to bleed)
	Learn testing techniques for problem garment testing
	Develop options for mixed loads
Spot Removal	Pre-spotting range of oil stains
	Identify stains likely to be removed by professional wet clean washing or pre-spotting
	Post-spot stains not removed by professional wet clean washing
Washing	Order loads by how items likely to be dried and finished
	Learn how to modify set programs for a particular load
	Learn how to create new programs
	Learn proper washer maintenance
Drying	Learn which dryer programs are synced with which washer programs
	Learn how to adjust existing program for a particular load
	Learn how to create a new dryer program
	Options for hang drying • Immediately after wash • After short tumble dry no heat • After short tumble dry with heat
	Learn when to remove selected items within a dry cycle for further hang drying
	Learn proper dryer maintenance
Tensioning Form Finishing	Learn which pre-set programs associated with which garment types
	Learn proper technique in setting range of garment types onto press
	Techniques to adjust garments on press during pressing process
	Techniques based on the degree of moisture retained prior to pressing
	Learn how to modify set programs for a particular item while on the press
	Learn how to create new set programs
	Learn proper tensioning form finisher maintenance

QUALITY CONTROL

In professional garment cleaning, whether in dry cleaning or professional wet cleaning, effective quality control is a team effort in which the entire work line – from counter, to spotters, to washers, to dryers, to pressers, to the bagger – must understand what is important to look for as garments move through the line. The following examples are common elements of good quality control in both dry cleaning and professional wet cleaning:

While the responsibility of the counter person is to tag items for pre-spotting, when garments are loaded into the washer, the washer operator should visually inspect items for stains requiring pre-spotting, pull these items from the current load and put them into the bin for subsequent pre-spotting.

During pressing, the presser may recognize a stain not removing during washing and/or pre-spotting, sending the garment back for post-spotting.

During bagging of pressing items, the bagger may notice a problem with the pressing quality and send the garment back for additional finishing.

After pressing is completed, a final quality control inspection is conducted prior to returning garments to customers.

Table 9, Table 10, and Table 11 list a number of quality control procedures practiced by professional wet cleaners at three critical stages of the cleaning process. Many of these practices are also used in dry cleaning. Some are unique to professional wet cleaning and take advantage of benefits created by changes in cleaning procedures.

Table 9: Pre-Wash Quality Control Measures

Stages	Quality Control Measures
Intake	* Flag items that may require special attention. * Communicate with customers when they drop off garments items which may be difficult to process and why, so they understand the risk beforehand.
Before Washing	* If possible, sort into daily bins by fiber type * Some items, like sweaters and beaded items should be put in their own bag * Combine like items of same color (light or dark) into a load * Some cleaners only spot-clean difficult stains, like blood or grease, and leave the rest to see if they come out in the wash (which they usually do). Other cleaners prefer to spot everything up-front, to avoid having to reprocess a garment if the stain didn't come out in the wash. * Some cleaners turn items with buckles and buttons inside out and bag them.
After Washing	* Sort dissimilar items that may have been combined in the wash before putting in the dryer. Some cleaners only combine items with the same fiber type in the dryer together, so the dryer setting will protect the garments from shrinkage. Other cleaners combine items with different dryer sensitivity, set the dryer to the most sensitive program, remove the dryer sensitive item after the first dry cycle is completed, then set a second dryer program for the second most sensitive item. * Check that all beads and buttons are on garment

Table 10: After-Washing Quality Control Measures

Stages	Quality Control Measures
Before Drying	* Pull aside items that cannot be machine dried. Either hang them flat, or hang them on hangars. Some cleaners hang items in their boiler room, where the air is warmer and will dry quicker.
During Drying	* Despite having moisture-sensing dryers, many cleaners like to check the garments every 3 minutes to make sure they are not over-dried. This can be done by opening up the dryer, feeling the garments with hands, and pulling out any that are getting too dry.
After Drying	* Separate items based on the type of tensioning station they will go to (blouse tensioner, jacket tensioner, pants tensioner, etc.). * Hang items immediately after machine drying to avoid wrinkling or creasing, allowing item to continue to dry by ambient air prior to pressing.

Table 11: Pre-Finishing Quality Control Measures

Stages	Quality Control Measures
Before Finishing	* Pressing line should check for any stains, button issues, snags, etc.
During Finishing	* Presser should check that garments are restored to their original size (sweaters, etc.). * Check the middle line of garments, especially that linings of jackets align with exterior. * Check that seams are flat.
After Finishing	* Check again for stains that might not have shown while garment was moist.
Before Bagging	* Check for lint, wrinkles, stray strings, buttons, and ornaments.

With proper quality control measures, you protect your customers' garments, your shop's reputation and the overall reputation of Professional Wet Cleaning. Wet cleaners who practice good quality control are able to grow their business without special advertising simply through the customer satisfaction their high quality work creates.

However, similar to dry cleaning, there are some items that are more difficult to process. We refer to these as Challenging Garments, because they can take some time to learn how to process successfully. When first getting

started, these items will take longer to process, but as the cleaner's experience grows, speed and confidence in processing them improve. Developments in technology that are occurring rapidly will make these issues easier to manage, if not obsolete. Consult with a current wet cleaner or distributor to learn more.

Table 12: Tips for managing challenging garments

Challenge Garments	Issue	Tips for Success
Acetate only garments	Spotting agent damage	Do not use K2R® spot lifter
Acetate silk	Spotting agent damage	Do not use K2R® spot lifter
Acetate velvet (crushed velvet)	May retain wrinkles if spun too quickly	Manually lower the RPM on wet cleaning cycle
Boiled wool	Weave tightens in cleaning cycle	Spot clean instead
Chinese and Indian-made garments	Color bleed; single stitches unravel	Test the garment first to see if it will bleed heavily. If reasonable to clean, use Colofix or a color stay and process it individually in cold water.
Furs	Damage to leather skin	Do not wash in hot water. Some cleaners disconnect hot water so as to avoid hot water accidentally getting near the furs.
Garments with pre-existing damage	Existing condition worsens	Talk with customer before cleaning
Garments with press-in pleats	A few pleats are easy to manage, but a full-pleated skirt would lose pleating and need ironing.	Decide before-hand if you want to re-pleat the garment. Discuss with the customer and charge more for the extra time needed.
Halloween costumes	Details are damaged	Talk with customer before cleaning
Laminated, coated or waxed garments	Coating melts	Do not process.
Sequined garments	Glued on sequins are more difficult than sewn on	Use an individual garment bag for this item, tightly closed around garment.
Shiny silk lusters	Luster is lost, garment looks dull	Liquor oil can help restore the luster after the cleaning.
Woven/hung knits	Knits stretch and lose original shape	Lay them flat to dry; do not hang dry.

MARKETING YOURSELF AS A PROFESSIONAL WET CLEANER

Because professional wet cleaning is considered as an environmentally friendly alternative to dry cleaning, cleaners switching to professional wet cleaning have the legitimacy to use social marketing to attract new customers by promoting their business as environmentally preferable. Professional wet cleaners have used social marketing to emphasize the benefits of professional wet cleaning such as the absence of adverse environmental impacts, a cleaner smell, better odor removal, and superior cleaning quality. The goal of this marketing is to raise the feeling of goodwill in the community towards the cleaner and makes current customers feel good about using the cleaner's services.

CUSTOMER PREFERENCE FOR PROFESSIONAL WET CLEANING AS A GREEN ALTERNATIVE

To understand the extent to which customers of professional cleaning service would prefer professional wet cleaning as an environmentally friendly service, Harris Poll[10] was commissioned by UCLA Sustainable Technology & Policy Program to conduct a survey of customers in the United States using dry cleaning services. Consumers were provided the following information:

- Definition of professional wet cleaning as a water-based alternative to dry cleaning
- That the USEPA encourages dry cleaners to use PWC because it is non-toxic and eliminates harmful dry clean chemicals
- Independent 3rd party studies showing dry cleaners who switch to PWC can successfully clean the full range of 'Dry Clean' and 'Dry Clean Only' garments they previously dry cleaned at the same cost.
- The Federal Trade Commission, which considers PWC as an environmentally friendly alternative to dry cleaning, is considered developing a 'Professional Wet Clean' care label.

* The Harris Poll was commissioned by the UCLA Sustainable Technology & Policy Program in response to a request by the Federal Trade Commission (FTC) for evidence with respect to whether the Commission should allow or require the use of a new 'Professional Wet Clean' label.

Figure 8: Graphic and poster from the FTC roundtable on professional wet cleaning

Consumers were then told to imagine owning a garment labeled 'Dry Clean or Professionally Wet Clean' and that the quality and price of the two cleaning methods were the same. Consumers were then asked which of the two cleaning methods they would prefer using.

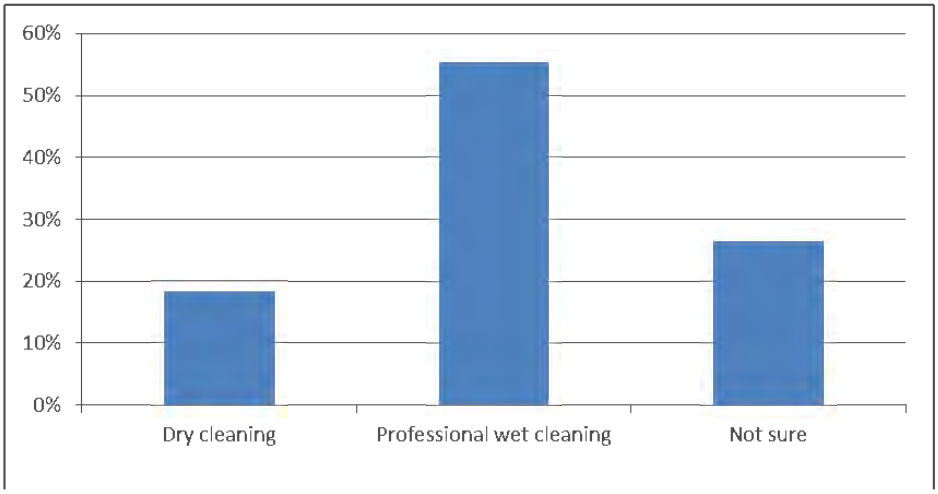


Figure 9 : Response to "Which cleaning method would you prefer?" in UCLA-Harris Poll, conducted Sept. 2013

The results showed a preference for professional wet cleaning that was three times greater than for dry cleaning! Only 18% said they would have the garment dry cleaned. 55% said they would prefer the garment be professionally wet cleaned and the remaining weren't sure. This shows a very strong preference for professional wet cleaning, very little loyalty to dry cleaning, and a strong green marketing potential for professional wet cleaning services.

EDUCATING CUSTOMERS THAT PROFESSIONAL WET CLEANING IS APPROPRIATE FOR GARMENTS LABELED 'DRY CLEAN' OR DRY CLEAN ONLY'

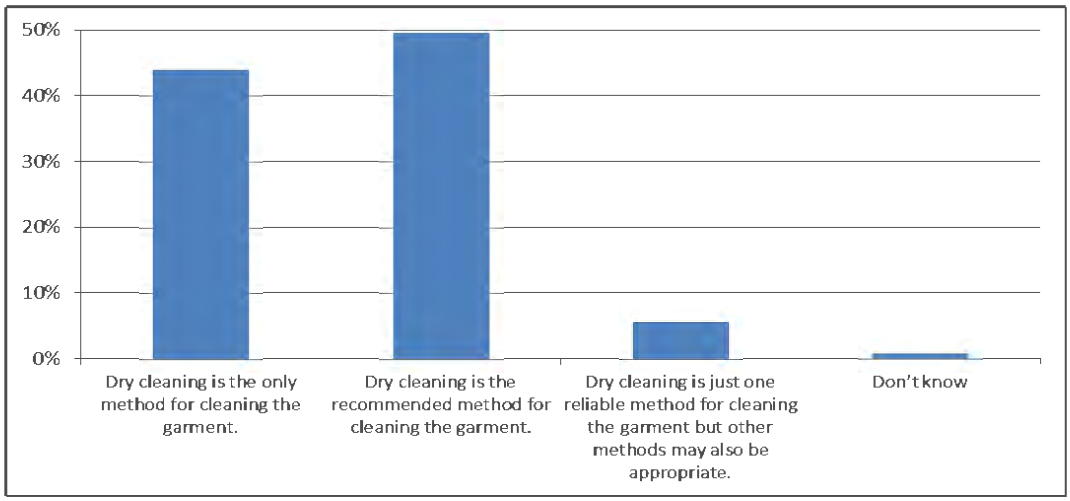


Figure 10: Response to question about garment labeling in UCLA-Harris Poll, conducted September 2013

While the Harris Poll clearly shows a strong green marketing potential for professional wet cleaning, the same poll showed that the vast majority (over 90%) of dry clean consumers think that garments labeled 'Dry Clean' means that dry cleaning is the only method for cleaning the garment (44%) or the recommended method (49%). Only 6% of customers got the answer right. The FTC defined a 'Dry Clean' label to mean that dry cleaning is just one reliable method for cleaning the garment but other methods may also be appropriate. This result shows that the 'Dry clean' care label is misleading to nine out of ten customers of professional cleaning services, creating a clear bias towards dry cleaning services and against professional wet cleaning services.

In addition, the Harris Poll asked whether dry clean customers have ever heard of professional wet cleaning and only 10% said “yes.”

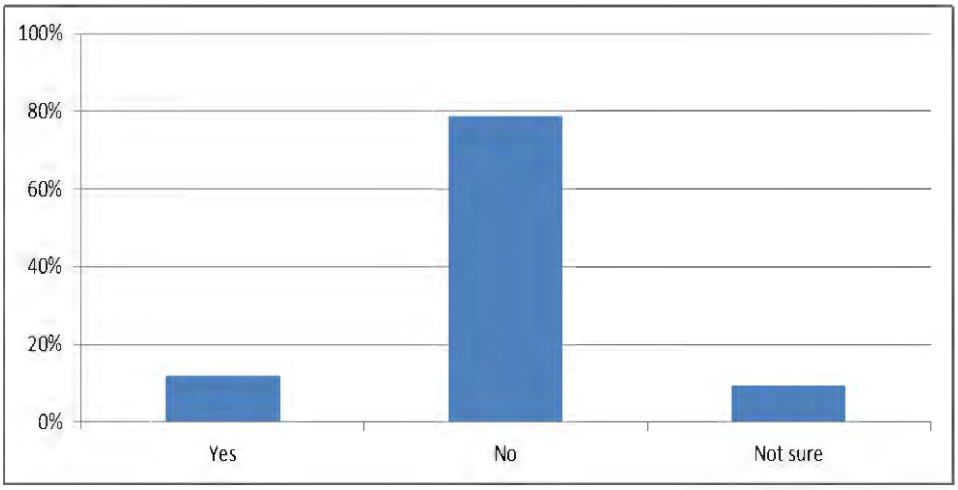


Figure 11: Response to “Have you ever heard of professional wet cleaning?” in UCLA-Harris Poll, conducted September 2013

These results show the green marketing challenge for professional wet cleaning, at this time, is to educate potential customers that professional wet cleaning is an appropriate method for cleaning ‘Dry Clean’ and ‘Dry Clean Only’ garments and that professional wet cleaning is considered a legitimate environmentally friendly green alternative to dry cleaning. Without a change in the care label rule, this effort has been shown to be marginally effective. The bias towards dry cleaning and away from professional wet cleaning created by ‘Dry Clean’ and ‘Dry Clean Only’ care labeling can be corrected by the Federal Trade Commission by requiring that all items carrying a professional clean label that can be professional wet cleaned, be labeled ‘Professional Wet Clean’.

FEDERAL TRADE COMMISSION "GREEN GUIDES"

Besides their responsibility to oversee garment care labeling, the Federal Trade Commission also regulates truth in advertising claims. The FTC has provided some guidelines for businesses who want to market themselves as "green" or "eco-friendly". These are called the *Green Guides* and can be found in the electronic code of Federal regulations (e-CFR) Title 16 → Chapter I → Subchapter B → Part 260. The guidance they provide includes: 1) general principles that apply to all environmental marketing claims; 2) how consumers are likely to interpret particular claims and how marketers can substantiate these claims; and 3) how marketers can qualify their claims to avoid deceiving consumers.[11]

The sections pertaining to Professional Wet cleaning are:

- General Environmental Benefit claims
- Degradable claims
- Non-toxic claims

Learn more about the Green Guides by visiting

http://www.ftc.gov/news-events/media-resources/truth-advertising/green-guides

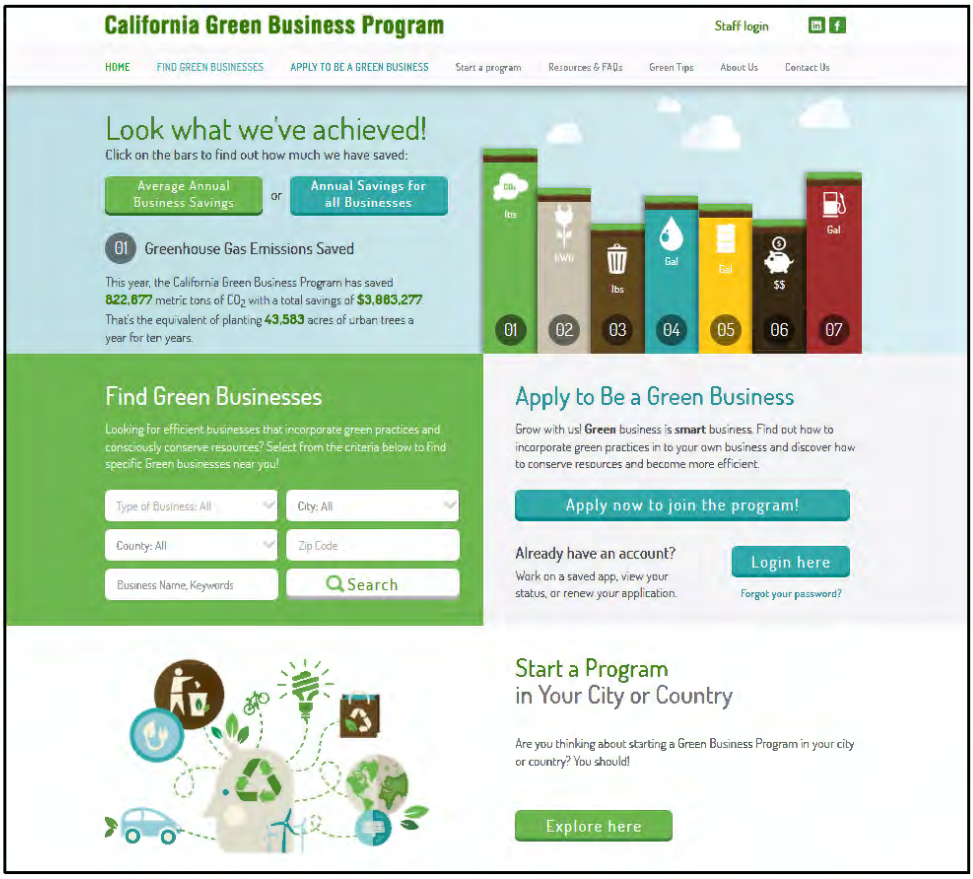
GREEN BUSINESS CERTIFICATION

Many cities and counties offer recognition to businesses that are environmentally friendly. This recognition often comes in the form of Green Business Certification, or similar certificate programs. You should contact your city or county's Department of the Environment, Department of Energy, or Chamber of Commerce to find out what programs are available in your area.

There is also certification at the state level by the California Green Business Program. Their website provides many resources to financial incentives for different types of projects at California green business. Take a look and see what they offer at http://www.greenbusinessca.org/

If there are no green business programs available in your area, visit the California Green Business Program's webpage "Start a Program in Your City or County" to find out how to encourage your city or county to start such a program http://www.greenbusinessca.org/uguide/

Once you have received a Green Business Certificate, display it on your wall or at your counter for all your customers to see!



LOCAL CITIES CAN REMOVE FALSE ADVERTISING BY DRY CLEANERS

Based on the California law, California Business and Professions Code section 17508, it is illegal to claim to be "green" or "non-toxic" or "eco-friendly" without evidence to support this claim. The US EPA has made it clear that PWC and CO_2 dry cleaning are considered environmentally-friendly services and would be able to legally make green marketing claims.

One California City, Santa Monica, took action against dry cleaners for false advertising. When these cleaners could not provide evidence that their dry cleaning process was non-toxic, they were forced to take down their misleading signs. The City Attorney has the authority to enforce action against false advertising. If you notice cleaners in your area who you believe are making a false advertising claim, you should get in touch with your local City Attorney or County Office of the Environment.

Figure 12: Sample placard from a local Green Business program.

SANTA MONICA Mirror

Six Santa Monica Drying Cleaning Businesses Busted For Misleading Customers

TUESDAY, 22 JAN 2013, 9:30:00 AM
BRENT ON GAREN

A Santa Monica City Attorney's office investigation has found that six Santa Monica drycleaning businesses were unable to produce evidence that support their claims of being "non-toxic," "safe," and "environmentally friendly."

The six businesses -- Cleaner By Nature, Courtyard Cleaners, Dry Clean Express, Eco Cleaners, Plaza Cleaners, and TJ Cleaners -- have agreed to stop making unsubstantiated environmental claims in their advertising.

Thinkstock
The City of Santa Monica is cleaning up misleading 'Green' advertising at Santa Monica dry cleaners.

Figure 13: Santa Monica Mirror article detailing legal action taken to remove false green claims

TAKING ADVANTAGE OF LOCAL PROGRAMS

Once you have found, or established, a Green Business Certification program in your area, take advantage of the reach that the City or County has.

For example, in the City of Thousand Oaks California, their Department of Environmental Programs is promoting their local Green Business Certified Professional Wet cleaner in two ways:

1. Promoting them in a quarterly newsletter "Green Scene"
2. Sending out a leaflet in the utility bill that tells residents about energy-saving businesses in their area.

These are just a couple of creative ways that you can take advantage of the outreach that cities and counties have to potential customers. You are also giving the city or county an opportunity to showcase that their program is working and growing. An example of the Thousand Oaks newsletter *Green Scene* and utility mailer are shown below.

Green Scene

Fall 2013 City of Thousand Oaks Environmental Programs toaks.org/GoGreen

Slash Energy Bills

Fall is coming, but Summer heat is still here. On the back page are some quick and easy solutions that can help you reduce your household energy costs today - and all year long.

Go online for rebates and other tips – The City website has more energy saving tips, resources and links to rebate offers (for when you decide to get that new energy-efficient refrigerator). Go to www.toaks.org/GoGreen and look for the Energy section under "Residents". *(See tips on page 2)*

Recycle What?

Milk and juice cartons and clothes that are not suitable for donating to thrift stores can be recycled curbside. So throw them into the recycle bin along with the pizza boxes and other recyclables.

A complete list of recyclable items can be found at www.toaks.org/GoGreen and remember the new "rule of thumb" is if you are unsure just throw it in the recycle bin.

CVUSD Recycles – A Success

"I learned that so many people throw recyclable things away in the trash that just doesn't make sense. We're just careless."
– Westlake Elementary student

The CVUSD Recycles grant program placed recycling bins on all CVUSD campuses and increased students recycling participation through a variety of activities including recycling contests, waste audits, and environmental assemblies.

Some schools started new recycling programs, while other campuses enhanced existing programs resulting in more than 9,200 pounds of bottles and cans (California Redemption Value containers) recycled last year. More recycling equals less trash. Madrona Elementary decreased their trash pickups to three times a week, saving $357.81 a month.

(cont'd. on page 2)

Calendar

- Sept 7 Household Hazardous Waste Collection
- Oct 2 SCE & SCG Energy Efficiency Presentation
- Oct 5 Household Hazardous Waste Collection
- Nov 2 Household Hazardous Waste Collection

Plaza Cleaners is Green Leader

In 2006, Plaza Cleaners switched to wet cleaning, a non-toxic and non-smog forming alternative to dry cleaning. They recently hosted a workshop for California dry cleaners led by Dr. Peter Sinsheimer from the UCLA Sustainable Technology & Policy Program at their cleaners at 1730 Avenida de Los Arboles.

The workshop demonstrated the wet cleaning process that uses biodegradable soaps. in place of the smog-forming carcinogen and nerve damaging chemical agent, perchloroethylene that is used in dry cleaning.

Plaza Cleaners Staff from left to right: Cynthia, Zahalledt, Stephanie, & Shawna (owner).

University studies have demonstrated that wet cleaning is environmentally preferable to traditional dry cleaning. Wet cleaning does a better job in cleaning clothes, is safer for workers and is less expensive.

(cont'd. on page 2)

City of Thousand Oaks Sustainability Leaders

The City of Thousand Oaks extends our appreciation to these businesses who are a making a difference. They have adopted sustainability practices within their businesses and are true leaders in our community and throughout California.

Notable Achievements

Plaza Cleaners is one of the first cleaners in the state to completely convert over to a non-toxic, non-smog forming process for cleaning clothes.

Conejo Awards won the prestigious Cool California award from the state for their efforts in reducing greenhouse gases.

Get Recognized!

If you are a City of Thousand Oaks business and have adopted sustainability practices within your operations, let us know! We want to recognize you and promote your business, email us at GoGreen@toaks.org or call 805-449-2400.

Why Get Certified?

- Gain Market Share
- Reduce Overhead
- FREE advertising on City website
- FREE advertising in local publications and events
- Usage of Green Business Logo in marketing materials
- Recognition plaque to display
- Recognition at City Council meeting

For information about green business certification or business sustainability practices in the City of Thousand Oaks, please contact GoGreen staff at 805-449-2400, email GoGreen@toaks.org or visit us at www.toaks.org/GoGreen.

For information about the City of Thousand Oaks's business assistance and economic development programs, please contact the City's Economic Development Officer Haider Alawami at (805) 449-2135 or email halawami@toaks.org

GREEN BUSINESS

Figure 14: Sample promotional materials produced by local environmental programs

OUTREACH TO CURRENT CUSTOMERS

You can start by advertising the benefits of professional wet cleaning to customers in your shop. Educating current customers about the benefits helps retain their business and enables them to spread the word about the benefits of professional wet cleaning to other potential customers. There are a number of inexpensive ways to accomplish this.

- ***Brochures***

Create an informative brochure outlining how the professional wet cleaning process works and the environmental benefits it creates. This brochure can be made available to customers at the front counter (see sample below).

Outside Cover

Use coupons to attract new customers to professional wet cleaning.

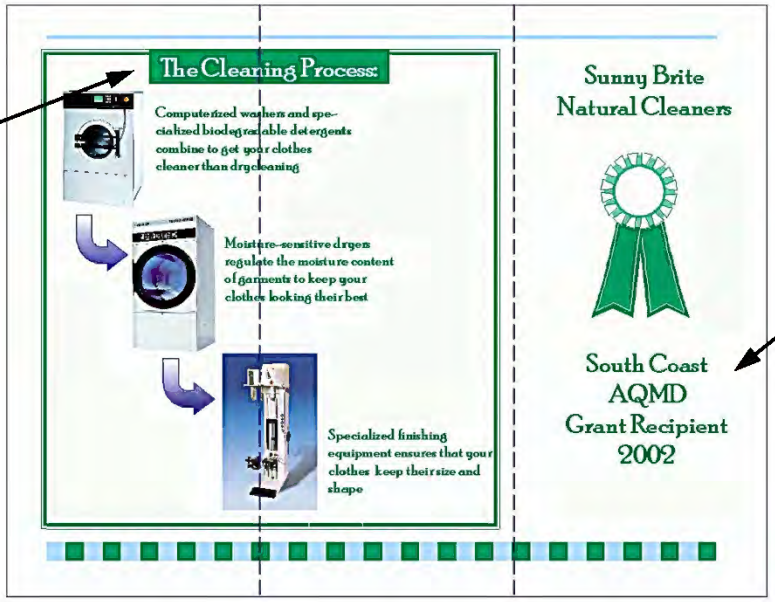
You can also create space for customers to comment on your services.

Promote your new name and logo highlighting the environmentally friendly process

Highlight the benefits of professional wet cleaning

Inside Cover

Include a brief description of the cleaning process



List environmental or excellence awards to increase credibility among your customers

• ***Hanger Tags***

Develop a flyer for distribution with outgoing garments informing customers about wet cleaning.

• ***Counter Work: Educating The Customer***

Informing the customers that you are now a professional wet cleaner can be tricky. Although pamphlets and informational flyers are helpful, most of the work should be done by the counter person, who has the most interactions with the customer. Therefore, it is important to educate your staff so they are able to accurately describe the professional wet cleaning process and answer any questions the customers might have regarding performance and/or environmental impacts. You may want to prepare a spiel with answers to frequently asked questions. You can brush up by viewing videos like the one created by UCLA about professional wet cleaning, called Professional Wet cleaning Demonstration 2013, which can be found at https://www.youtube.com/watch?v=i2z_ySLcMHk

When talking to your customers, remember the following:

1. Describe the process in simple words while highlighting the differences between professional wet cleaning equipment (e.g., computerized machines, specially formulated chemicals, specialized finishing equipment), and household washers and dryers.

2. Highlight the differences between the homemaker's skills for doing laundry and your professional skills and knowledge of fibers and fabrics.

3. Explore all marketing angles:

    - Superior quality of services: clothes will look brighter and smell better
    - Safety for consumers and workers: non-toxic, won't cause allergies
    - Environmentally preferable: Biodegradable chemicals + water. Will not pollute the air, water or soil.

Counter display

- ***Shop Appearance***

1. Name Change: It is a good idea to change the name of your shop to reflect the use of environmentally preferable technology. This noticeable change may serve to call attention to the professional wet cleaning process to new and existing customers.

2. Signage & Displays: You may also want to update your signage and shop appearance to advertise the benefits of wet cleaning. Posting of any awards or news coverage relating to your switch to professional wet cleaning may increase customers' enthusiasm about the process.

OUTREACH TO SURROUNDING COMMUNITY

- ***Grand Opening***

  Hold a grand opening that would be open to the public. Articles in the local paper along with invitations to key people in the environmental and political realms would serve to maximize the publicity surrounding this event. In addition to a ribbon-cutting ceremony, tours would be offered and information on Professional Wet cleaning would be made available. Community members would also get the chance to talk directly to the cleaner about any questions or concerns that they might have.

Figure 15: This cleaner held a grand "Re"opening and invited an environmental group and the press.

- ***Asset Mapping***

  Prior to sending out any direct mailers or advertisements, identify target recipients as well as various institutions within the community with which you would be able to form a relationship. By performing asset mapping on the communities surrounding each cleaner, individual cleaners will more easily be able to secure large accounts.

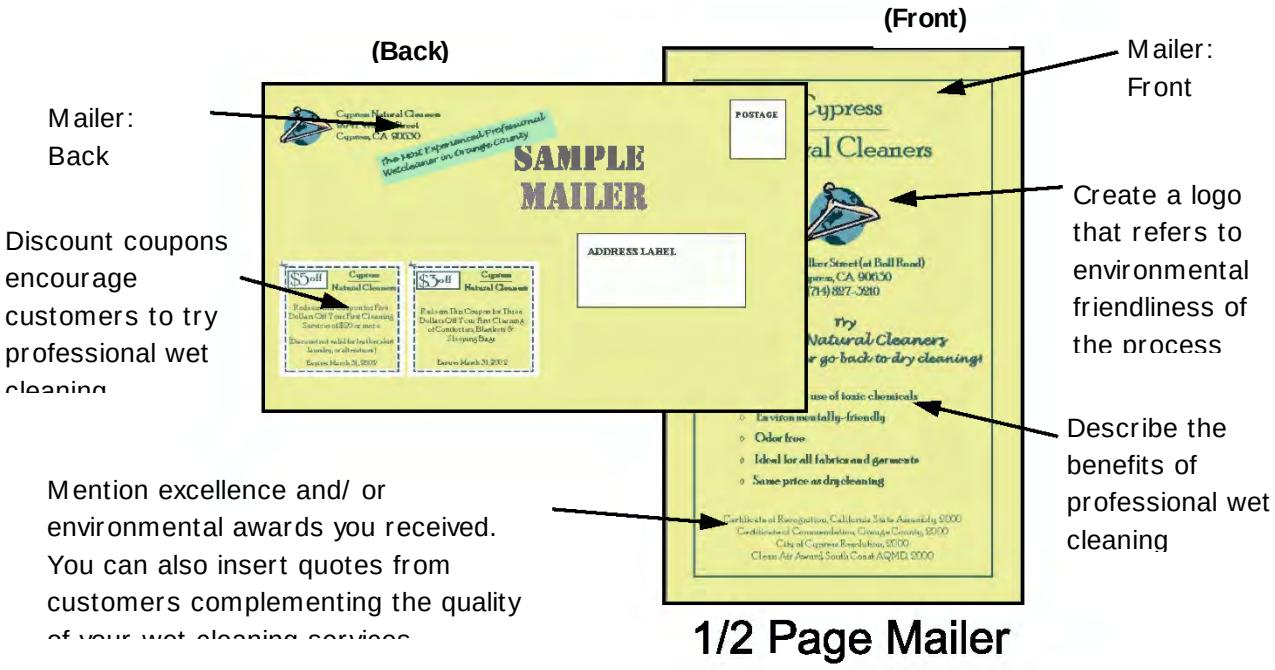
- ***Flyers***

  Develop flyers announcing your transition to a natural cleaning process. Flyers should contain information on the benefits of professional wet cleaning. Discount coupons could also be added for first time customers to attract new business. Informational flyers can be distributed at the parking lot, or made available at other businesses around your shop, such as coffee houses, restaurants, markets, etc.

1/2 Page Flyer

- ***Direct Mailers***

  Design a direct mailer to be mailed out to the community based on the findings of the asset mapping process in regard to distance from the cleaner, household income, and new residences. Depending on your needs, direct mailers may be sent out monthly or less frequently. Following distribution of each round of direct mailers, evaluate their effectiveness through assessment of any changes in the number of garments being cleaned.



1/2 Page Mailer

FREQUENTLY ASKED QUESTIONS

COST

Q: How much will it cost to convert?

A: It really depends on what kind of equipment you buy. Professional wet cleaning equipment generally costs the same or less than a comparable quality dry clean system.

Q: How will this affect my costs of operation?

A: Operating costs in professional wet cleaning are substantially lower in professional wet cleaning compared to dry cleaning. Cleaners switching from perc dry cleaning to professional wet cleaning have experienced a one-third reduction in operating cost. The higher operating costs in dry cleaning are due to operating pollution control — including the solvent recover system and the distillation system. Costs that are higher in dry cleaning associated with pollution control include electricity and natural gas, machine maintenance, solvent replacement, hazardous waste disposal, and pollution permitting. The only cost consistently higher in PWC is detergent costs.

DIFFICULTY

Q: How hard will it be to learn?

A: Many of the things you did as a dry cleaner will transfer over to professional wet cleaning, such as sorting, spotting and finishing. You will have to learn some new processes related to the washing, drying and finishing, but most cleaners learn within a week to a month. Quality of equipment and detergents as well as quality of training impact the speed and effectiveness of learning.

TRYING IT OUT

Q: How can I take a closer hand-on look at professional wet cleaning?

A1: Go visit a professional wet cleaner. Visit http://www.stpp.ucla.edu/greenCleaners to find a list of professional wet cleaners. Give them a call and let them know you are interested in visiting their shop to see their equipment and learn about their process. You may wish to offer to pay them for their time. Professional wet clean equipment distributors should also be able to arrange for you to visit a professional wet cleaner that they helped convert. You may also contact the Professional Wetcleaners Association at http://professionalwetcleaners.org/

A2: After seeing how the professional wet cleaning process works, some cleaners experiment with their existing laundry and pressing machines by purchasing a small amount of professional wet cleaning agents, using these cleaning agents in their industrial laundry machine in a delicate cycle, partially machine dry and/or hand dry, and use their existing pressing machines to finish. This experimentation is not suitable for tailored structured apparel, but allows the cleaner to take a next step.

A3: Another option used by some cleaners wishing to take a hard look is to arrange with an existing professional wet cleaner a time to bring over loads of 'Dry Clean' and 'Dry Clean Only' garments and allow the dry cleaner's staff to process the garments using the professional wet cleaning system with assistance from the professional wet cleaner's staff. Cleaners making these arrangements themselves often pay the host professional wet cleaner for their time. Professional wet clean equipment distributor may also be able to make these arrangements. In these cases, the distributor typically compensates the professional wet cleaner for their time and effort.

QUALITY

Q: Will the quality of my work suffer?

A: No, it will likely improve. With proper equipment and proper training, dry cleaners switching to professional wet cleaning are able to successful clean the same 'Dry Clean' and 'Dry Clean Only' garment they previously dry cleaned. In addition, because in professional wet cleaning garments are cleaned in pure solvent every time, while in dry cleaner garments are often cleaned in un-distilled dirty solvent, the cleaning quality substantially improves. In addition, cleaning quality is further improved in professional wet cleaning because most stains and soils are water soluble, which are more effectively cleaned in water-based professional wet cleaning.

Q: Will my customers notice?

A: Most customers won't notice that you changed anything unless the cleaners tell them. That said, most professional wet cleaners who switch are able to increase their customers based without telling their customers. Thus, some customers do notice an improved cleaning quality and tell others about it, which results in an increase in the professional wet cleaner's customer base.

LEGAL ISSUES

Q: Is it legal to professional wet clean garments labeled "Dry Clean Only"?

A: Yes, in theory. According to the Federal Trade Commission, who is responsible for the United States care label law, it is not against the law to professional wet clean a garment labeled 'Dry Clean' or 'Dry Clean Only.'

Q: What if a customer takes me to court for wet cleaning a garment labeled "Dry Clean Only"?

A: As you know, there are just some customers who will take you to court no matter what you do. When a small claims court judge is asked to resolve a dispute between a cleaner and a customer, if the customer garment is labeled 'Dry Clean' or 'Dry Clean Only' and the judge learns that garment was professionally wet cleaned, the judge rules against the cleaner. While it may be possible to educate small claims court judge of the FTC position, this is probably unlikely. In the future, if delicate garments were labeled 'Dry Clean or Professional Wet Clean' this would eliminate confusion caused by current care label practices and educate both customers and small claims court judges about the appropriate use of this technology.

REGULATION

Q: How will this affect my permit to operate?

A: Once you convert to professional wet cleaning, you no longer need to have an operating permit from the local air quality agency. Because of professional wet cleaning's non-toxic air quality benefits, the United States Environmental Protection Agency encourages cleaners to use professional wet cleaning. City and county governments have also shown support for professional wet cleaning, qualifying the technology for Green Business Certification. See the Green Marketing chapter of this guidebook for more information.

CUSTOMERS

Q: How do customers respond to cleaners who have switched from dry cleaning to professional wet cleaning?

A: Fear of how customers will respond to switching to PWC when the care label says 'Dry Clean' or 'Dryclean Only' is an important reason why dry cleaners taking a hard look at PWC decide not to switch. Cleaners making the switch without telling their customers find that they not only are able to keep their existing customers but that their customer base grows by word-of-mouth about the increased quality of cleaning. Green marketing has the potential of substantially attracting additional new customers based on professional wet cleaning's superior environmental profile.

FEAR OF FAILURE

Q: Is it reasonable to be concerned about failing to successfully switch?

A: Yes. Switching to professional wet cleaning requires a change in the process of cleaning including work conducted by counter personnel, the cleaner/spotter, and the pressing staff. That said, hundreds of cleaners across the United States have successfully switched from dry cleaning to professional wet cleaning. Some cleaners switched nearly 20 years ago and are continuing to run successful businesses!

Q: Why isn't there a 'Professional Wet Clean' care label?

A: Outside the United States there already is a 'Professional Wet Clean' care label. In the United States, the Federal Trade Commission, who is responsible for the care labeling in the US, considers professional wet cleaning

an environmentally friendly alternative to dry cleaning, supports allowing apparel manufactures to use a 'Professional Wet Clean' label. In March 2014, the FTC held the first-ever workshop about whether or not they should *allow* or *require* garment manufacturers to use a professional wet clean label.

Q: What about all the other cleaners that advertise as "Eco-Friendly" or "Green" but who are still using toxic solvents?

A: In California, a new state law requires evidence when making an advertising claim. The first California city to enforce this law for professional cleaners is Santa Monica. As a consequence, a number of hydrocarbon dry cleaners in the city have agreed to stop marketing their cleaner as environmentally friendly. Professional wet cleaning and carbon-dioxide cleaning are the only two professional cleaning processes considered as environmentally friendly.

AVAILABILITY OF PROFESSIONAL WETCLEANING EQUIPMENT & PRODUCTS

Q: How available is professional wet clean equipment?

A: Most industrial washer and dryer manufacturers now have a set professional wet cleaning machines. There are now 8 manufacturers marketing professional wet cleaning washers and dryers. In addition, most professional cleaning agent companies have now have formulated a line of professional wet cleaning detergents, softeners, and sizing agents as well as spotting chemicals specially for use in professional wet cleaning. Finally, tensioning finishing has increased in popularity in professional garment cleaning due the increase in efficiency and effectiveness of finishing. There are now 7 manufacturers of tensioning equipment; and 9 manufacturers of cleaning agents. The number of vendors continues to grow every year!

LEARNING MORE ONLINE

Q: Are there useful online materials worth seeing?

A: Like all technologies these days, there is plenty of information online about professional wet cleaning. For example, we have produced a video shot at a professional wet cleaning demonstration workshop that provides an overview of professional wet cleaning, including interviews with a number of professional wet cleaners who converted from dry cleaning. See: https://www.youtube.com/watch?v=i2z_ySLcMHk. As with all online material, it is important to know who is producing the information and what interest they have in producing it.

ADDITIONAL RESOURCES

There are many types of groups who are interested in Professional Wet cleaning because of its environmental benefits. Please review the resources listed below for more information about all aspects of wet cleaning.

STATE AND LOCAL AGENCIES

California Air Resources Board

http://www.arb.ca.gov/toxics/dryclean/ab998.htm

The California Air Resources Board (ARB) administers the implementation of the "Non-Toxic Dry Cleaning Incentive Program (AB 998). Please visit their website to learn more about:

- State Grant Program information and application
- Additional Financial Incentive Programs at the local level
- Regulatory Information

NON-PROFIT ORGANIZATIONS

UCLA Sustainable Technology & Policy Program

http://www.stpp.ucla.edu/node/12

The UCLA Sustainable Technology & Policy Program (STPP) has nearly 20 years' experience in evaluating professional wet cleaning. Visit their website to learn more about:

- Viability of Professional Wet cleaning in detailed reports
- Locating a Green Cleaner near you
- Professional Wetclean Care Label updates

Professional Wetcleaners Association

http://www.professionalwetcleaners.org

The Professional Wetcleaners Association provides a list of member cleaners across California who are willing to share their expertise and help you learn about wetcleaning. Visit their website to learn who they are.

Toxics Use Reduction Institute

http://www.turi.org/Our_Work/Business/Small_Businesses/Dry_Cleaning

The Toxics Use Reduction Institute (TURI) provides information for small business on:

- Dangers of Perchloroethylene
- Alternatives to "Perc"
- Videos and Fact Sheets on Wetcleaning

PRIVATE COMPANIES

Below is a list of vendors who sell professional wet cleaning equipment. This list is provided by the California Air Resources Board, and does not reflect an endorsement of these vendors. Because technologies are constantly being innovated and new companies started, you should do your own search for equipment vendors too.

COMPANY NAME	PHONE	FAX	EQUIPMENT MANUFACTURERS
Adco	800-821-7556	660-826-1361	Professional Wet Cleaning/Detergent
Aero-Tech, USA	305-754-4552	305-751-4903	Green Jet Cleaning System
Alliance Laundry Systems	920-748-3121	920-748-1664	Professional Wet Cleaning
Aqua Clean LA Distributors	800-465-8300	310-327-3964	Professional Wet Cleaning/Detergent
Aqua Clean Systems, Inc.	1-800-381-7222	516-371-4204	Professional Wet Cleaning/Detergent
Aquatex-Iowa Techniques, Inc.	1-800-727-1592	512-846-2411	Professional Wet Cleaning
B&C Technologies	850-249-2222	850-249-2226	Professional Wet Cleaning
Beta Technology Inc.	800-858-2382	831-423-4573	Soap Pumps
Bruske Cleaner Technologies	845-858-9951	845-858-9951	Professional Wet Cleaning/Detergent
Caled Chemical	800-652-2533	800-225-3332	Detergent
Clean Concepts	972-406-8107	972-406-8057	Professional Wet Cleaning/Detergent
Continental Girbau	920-231-8222	920-231-4666	Professional Wet Cleaning
Corbett Equipment	714-596-2224	714-596-2231	Professional Wet Cleaning
D&S Exports, Inc.	203-847-6446	203-849-9526	Professional Wet Cleaning
Edro Corporation	860-828-0311	860-828-5984	Professional Wet Cleaning
Elite Machinery Corp.	714-541-2829	714-541-2973	Prof.Wet Cleaning/Finishing/Tensioning/Detergent
European Finishing Equipment	201-460-7397	201-964-1404	Finishing/Tensioning Equipment
Fabritec	800-543-0406	859-781-8280	Detergent
Feori	847-809-7206	847-303-6100	Cold Water Cleaning
Fiber Tech	888-833-6181	504-219-2180	Detergent
Forenta	423-586-5370	423-586-3470	Finishing/Tensioning Equipment
Fujistar	800-842-9661	818-361-1002	Professional Wet Cleaning
FutureClean USA	562-483-1436	562-802-5956	Cold Water Cleaning
Green Solutions	213-944-1238		Green D2D Cleaning System
Hi-Steam (Cleaners Future Tech)	877-877-8373	714-965-9300	Finishing/Tensioning Equipment
Hi-Steam (Westrn Multiptex)	714-871-8890	714-525-3616	Professional Wet Cleaning/Detergent
Hoffman	973-748-0500	973-748-1341	Professional Wet Cleaning/Detergent
Imesa	877-873-8451		Professional Wet Cleaning/Detergent
Inno Clean Corp.	201-288-5577	201-288-5576	Prof.Wet Cleaning/Finishing/Tensioning
IPSO-Automated Laundry Systems	818-846-7242	818-556-6242	Professional Wet Cleaning

COMPANY NAME	PHONE	FAX	EQUIPMENT MANUFACTURERS
Kelleher Equipment	562-422-1257	562-422-4390	Green Jet Cleaning System
Kirk's Suede Life	800-447-5475	815-724-0380	Detergent
Kleerwite Chemical	877-553-3794	703-454-7362	Detergent
Knight Inc.	800-854-3764	949-595-4801	Soap Pumps
Kreussler Inc.	813-884-1499	813-884-1599	Detergent
Laidlaw	508-699-5521		Detergent
Linde Gas LLC	440-668-6436		Detergent
Miele	609-419-9898	609-419-1853	Professional Wet Cleaning
Pariser Industries	973-569-9090	973-569-9101	Professional Wet Cleaning
Pellerin Milnor	504-467-9591	504-468-9307	Professional Wet Cleaning
R. R. Street	630-416-4244	630-416-4150	Detergent
Royaltone	800-331-5506	918-665-6017	Detergent
Sail Star USA	704-393-2452	704-393-3257	Professional Wet Cleaning
Sanitone	800-543-0406	859-781-8280	Detergent
Seitz	813-886-2700	813-886-2510	Detergent
Trevil	877-873-8451		Finishing/Tensioning Equipment
Uni-Mac	800-587-5458	420-748-4431	Professional Wet Cleaning
UniMac-Best Way Laundry Systems	800-542-6166	909-734-9434	Professional Wet Cleaning
Unipress	813-623-3731	813-626-2565	Finishing/Tensioning Equipment
Veit	770-868-8060	770-868-1313	Finishing/Tensioning Equipment
Wascomat Laundry Equipment	800-645-2205	516-371-4204	Professional Wet Cleaning

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