FINALLY, DRY CLEANING TO SUIT YOUR TENANT NEEDS

No hazardous chemicals. Safe for air, water and soil.
“I read all the promotional material you sent us and I thought it sounded too good to be true. I thought that if half of your claims were true I would be happy, that it was a lot of hype to sell the product. Well I am delighted to say that every last word about the benefits of GreenEarth Cleaning is true and more... We are producing the best garment I have ever seen in dry cleaning and I am a third generation dry cleaner, have been in business all my life. I especially love how soft, bright and beautiful the silk garments are! My pressers love the fact that the clothes are less wrinkled and easier to finish. Most of all, I am so happy that I don’t have to breathe perc anymore.”

Debbie Schuster, Blossom Hill Cleaners
Los Gatos, CA

“(GreenEarth) as an alternative dry cleaning solvent will not pose adverse health risks to the public ... ARB sees no need to regulate its use.”
California Air Resources Board
2008

“D₅ silicone is not considered harmful to human health.”
Environment Canada
Board of Review
For too long, dry cleaners have been nothing more than a liability for landlords and developers. The dry cleaning industry’s reliance on hydrocarbon solvents, both unchlorinated (e.g. DF2000) and chlorinated (e.g. perchloroethylene, or perc), have made it difficult to allow traditional operators in shopping centers. But now there’s GreenEarth Cleaning and dry cleaners using our patented dry cleaning process can be safe and profitable tenants.

Americans spend upwards of $9 billion dollars a year at the dry cleaners. Eighty-five percent of those cleaners still use perchloroethylene or perc, a 1950’s era cleaning solvent considered by the EPA to be an air and water toxin and a likely human carcinogen. Exposure can lead to increased risk of cancer, eye, nose, throat and skin irritation and reduced fertility. Contamination from spills and leaks can mean millions in clean up costs.

Environmentalists, scientists, politicians, health professionals, property owners, consumers and regulators—everyone agrees. The industry has no alternative but to find a safe alternative to perc. California has recently banned perc, as well as the purchase of machines that use it. And while they were the first state in the country to do so, they likely won’t be the last. Fortunately, a viable and proven alternative exists: the patented GreenEarth Cleaning System.

With GreenEarth, property owners no longer need “no dry cleaner” restrictions. Because with GreenEarth, there is nothing to pollute the air, water or soil. So there is no hazardous waste, no worry about costly clean ups, no liability barriers to bank financing and no cause for community concern.

From a dry cleaner’s perspective, GreenEarth’s eco-friendly, gentle, odor-free benefits are highly marketable. Time and again, GreenEarth Affiliates who market their difference see a measurable increase in sales. What’s more, GreenEarth cleans as well as perc, equipment is affordable, and processing is less expensive.

Finally, property owners, dry cleaners and customers have a real choice when it comes to dry cleaning!
The perks of perc-free dry cleaning.

GreenEarth’s environmental profile doesn’t just solve the problem of perc, it creates opportunities. Lots of them. With licensed GreenEarth dry cleaners, shopping centers can:

**Attract frequent, upscale customers.** Every dry cleaning transaction means two trips. Two visits by the right kind of customers, week in and week out. With higher incomes and more discretionary dollars to spend. There is no better traffic builder.

**Expand retail offerings with a service that enjoys steady demand.** Whether it’s winter, summer, spring or fall, dry cleaning services are always in demand. And, unlike many retail and service businesses, dry cleaning is less vulnerable to discretionary belt tightening. Not only is GreenEarth Cleaning increasingly the preferred choice for customers, we are working with garment manufacturers around the world who are interested in specifically recommending GreenEarth on their care label instructions.

**Make a high quality “green” statement.** Environmentally conscious living is not just a fad, it is here to stay. Environmentally relevant businesses have the competitive edge. GreenEarth Affiliated cleaners stand out with storefronts that aren’t “just another dry cleaner”.

**Reap percentage rent benefits.** The strong sales volume enjoyed by a good dry cleaner is ideal for percentage rent lease contracts. And, unlike many “green” business opportunities today (including CO₂ and wet cleaning, the only other true green dry cleaning alternatives), dry cleaning with the GreenEarth Cleaning system can be very profitable. Equipment is affordable, operating costs are less expensive, cleaning and fabric care benefits are excellent, and professional marketing assistance makes promotion easy and effective.

**Partner for the long haul.** Dry cleaning is capital intensive, noncyclical and not vulnerable to fads. A successful dry cleaner can stay in business for generations.

“We like the fact that we do not have to deal with the SCAQMD [South Coast Air Quality Management District] since with this kind of cleaning there is no need for permits, no hazardous materials, and disposal is equal to that of motor oil.”

Amin Amersi, Hollyway Cleaners
West Hollywood, CA
GreenEarth Cleaning was formed in 1999 by three dry cleaners with extensive operational experience in the dry cleaning industry. GreenEarth is the brand name for a patented silicone-based dry cleaning process. The silicone used in the GreenEarth process is chemically known as D₅ or decamethylcyclopentasiloxane. Although it has been used safely in a wide range of industries for many decades, the application of silicone in dry cleaning was an accident of fate. It was discovered by a scientist working on a cosmetic formulation who was absentmindedly stirring a beaker of liquid silicone with his finger. When he pulled his finger out, he realized the silicone had removed the fats and dirt from his finger without drying it out. He wondered if it could do the same for clothes.

The GreenEarth Cleaning company was formed in an effort to provide fellow dry cleaners with a fully balanced alternative solution to the well-known challenges presented by perc.

What defines a fully balanced alternative solution?

Four significant things:

1. It must be safe.
2. It must allow for effective cleaning.
3. It must be operationally efficient.
4. It must fit in a space footprint that allows for fully operational package plants that can be placed in commercial real estate developments in high demographic locales.

After first conducting a thorough analysis of all other solvent alternatives, a one-year test of the GreenEarth solvent was implemented at 25 operating plants all over the U.S. in the year 2000 (the GreenEarth process was not available to anyone until the year’s testing was complete and the 26,000 waste stream test samples were collected and fully analyzed). With positive results in hand, both GreenEarth and its founding members, General Electric and Procter & Gamble, were satisfied that GreenEarth liquid silicone solvent cleared all four of the hurdles established as criteria.

“When we were looking at taking Tide’s history and heritage in cleaning into the dry cleaning space, there was only one partner we considered to help pave the way: GreenEarth. Their industry technology and expertise made GreenEarth a perfect fit for Tide Dry Cleaners, and has helped our business get off to a great start in Kansas City. The consumer response to the Tide Dry Cleaning test stores has been overwhelmingly positive, and GreenEarth’s role in providing the consumer experience we were looking for can’t be overlooked. We couldn’t be happier.”

Gary Coombe, Procter & Gamble
Cincinnati, OH
An important reason GreenEarth has been successful in conducting the tests and assembling the supporting marketing materials, trademarks, copyrights and the GreenEarth Cleaning website is because it owns 142 issued and pending global patents that cover the dry cleaning of fabric using silicone as the solvent. This patent protection, combined with multiple patents held by our strategic partners, and the associated licensing revenue from the patents has allowed the company to look at the use of silicone holistically, rather than just being solvent salesmen like our competition.

Here’s a look at how GreenEarth clearly clears each of the hurdles!

**Criteria #1: GreenEarth is safe.**

**For the planet.** Liquid silicone is environmentally safe. If it were to be released to the environment, because of its unique chemical and physical properties, D₅ silicone would rapidly and safely degrade into its three natural components of sand (SiO₂), water and carbon dioxide through indirect photolysis. This is true regardless of where it was deposited into the environment (e.g. air, soil or water) due to its relatively high vapor pressure and volatility, which causes it to migrate mainly into the air. Because the same silicone used in GreenEarth is used as a carrier ingredient in a wide range of personal care products we use everyday, a great deal of the material has entered our wastewater treatment plants over several decades from showers and bathtubs. Again, it safely degrades into SiO₂, CO₂ and H₂O.

It is this fundamental property of silicone that attracted the attention of GreenEarth initially. Because in fact, an accidental spill of silicone is not like an accidental spill of any other dry cleaning solvent—it doesn’t result in any contamination and therefore, does not require an environmental clean up.

“My landlord required a $3 million pollution liability policy. When they learned more about GreenEarth, however they lowered it to $500,000—which will save me thousands of dollars every year.”

Paul Polinsky, Dry Cleaning Station
Durham, NC

“We have been profiled on TV four times in the last six months, from morning news segments to the Discovery Channel. GreenEarth has raised our profile to consumers and the media.”

Tim Yoo, Laird Cleaners
Toronto, Canada
For people. GreenEarth’s pure liquid silicone is both non-allergenic and non-irritating; it is so safe you could rub it on your skin. In fact, you probably already do. That’s because it is also used as a base ingredient in shampoos, conditioners, skin lotions and other personal care we use everyday.

Further, the GreenEarth Cleaning system is a closed loop application. The silicone is continually recycled within the machine, so the amount of exposure of silicone to the air is extremely minimal. Sampling of the exposure levels in GreenEarth dry cleaning plants shows it to be as low as 0.22 parts per million in the air in an eight hour time-weighted average.

Regulators agree. GreenEarth silicone has been recognized by the U.S. EPA as an approved substitute for ozone-depleting chemicals under the Significant New Alternatives Policy (SNAP) Program. The SNAP program is an EPA initiative under the stratospheric ozone protection provisions of the Clean Air Act (CAA). The purpose of the program is to allow a safe, smooth transition away from ozone-depleting compounds by identifying substitutes that offer lower overall risks to human health and the environment.

Many state regulatory agencies have also acknowledged GreenEarth’s ability to provide a safe alternative for our industry and for our environment. For example, Region 8 of the U.S. EPA recognized one of our GreenEarth Affiliates in Colorado with an award for “significant achievements in protection of public health or the environment.” The Illinois EPA reviewed a great deal of data in late 2005 and early 2006 and concluded that the GreenEarth silicone dry cleaning process should be designated as a “green” solvent. The GreenEarth (D₅) process joined CO₂ and 100% wet cleaning in this green designation. And finally, in February 2008, after an exhaustive 18-month review of independent scientific testing, the California Air Resources Board (CARB) issued an assessment to the California Air Quality Districts affirming GreenEarth as an acceptable alternative dry cleaning solvent. In it, CARB stated “use of D₅ (GreenEarth liquid silicone) as an alternative dry cleaning solvent will not pose an adverse health risk to the public living near business using D₅. Therefore at this time CARB sees no need to regulate its use in dry cleaning.” There is probably no state in the nation with environmental standards more rigorous than those adopted in California, and the Air Resources Board—the lead regulatory agency overseeing the transition by dry cleaners to alternative solvents as a consequence of the state’s phased in ban of perc—is no exception.

Canada and Britain have also weighed in on the safety of D₅ silicone for people and the planet. In 2009, Environment Canada published a final assessment on siloxanes that concluded D₅ was not a concern for human health. More recently in 2011, after a 14-month essentially de novo risk assessment taking into account all of the available, relevant, scientific information about siloxane D₅, Environment Canada issued a report from an independent expert Board of Review that concluded D₅ silicone “does not pose a danger to
the environment or its biological diversity.” Canada’s assessment is consistent with the UK’s 2009 Environment Agency report which stated that, “No risks are identified to the air, water, and the terrestrial compartments, nor to humans exposed via the environment from the production and all uses of D₅.”

**Criteria #2: GreenEarth allows for effective cleaning.**

**Tests prove it.** In early 2001, GreenEarth asked the International Fabricare Institute (IFI) to conduct an independent study of the cleaning properties of liquid silicone. After some 14 months of performance testing, the IFI issued the Fellowship Report in September 2002 and concluded that “GreenEarth® Cleaning is a viable alternative for the dry cleaning industry, and while different in some respects, is comparable to a perc drycleaning process.” The study also affirmed the role of Procter and Gamble in developing detergents optimized for silicone cleaning. Additional testing by the IFI in 2007 on all the alternative solvents rated GreenEarth as a five star performer, giving it the highest possible ratings for cleaning.

“It was the best business decision I ever made. Our customers benefit from a better cleaned product and I feel comfortable because it fits in so well with the environmental philosophy we all feel so strongly about these days. I’ve also gotten feedback from customers who appreciate the environmental aspect of our change.”

John Winterburn, Portage Cleaners
Portage, MI

“Every customer is overwhelmed. They think this is the best thing we ever did.”

Katherine Mask, Art Cleaners
Boulder, CO
**Affiliates approve it.** Based upon the results being achieved in over 1600 licensed machines worldwide (with many operating for more than five years), silicone-based dry cleaning is clearly over the hurdle of proving itself effective in cleaning. GreenEarth’s license renewal rate, an objective measure of operator satisfaction, consistently averages over 95%. And, given the additional garments that can be cleaned in GreenEarth (beads, sequins, fur and leather trims, etc. are not able to be cleaned in perc or hydrocarbon), all GreenEarth Affiliates are cleaning more garments in GreenEarth than they could with any other solvent.

**Criteria #3: GreenEarth is operationally efficient.**

**Lower energy and labor costs.** Different solvents require different cleaning machines and different finishing techniques to allow for the chemistry differences of the solvents. As a result, washing times and drying times can vary with each solvent. GreenEarth operators can utilize cold-filtration technology to reduce their utility demand for solvent purification by 85% over traditional systems. What’s more, the time to press and finish a garment varies based upon the solvent being used. With GreenEarth, because silicone weighs a lot less than perc, clothes are cleaned with less wear and tear abrasion, resulting in less lint and less wrinkles being set in the clothes, so pressing and finishing is easier.

**Lower claims costs.** Chemistry differences also affect other operational efficiencies. For instance, the aggressiveness of a solvent determines how potentially damaging it can be to a garment. Should dyes bleed excessively, customers must be reimbursed for the damage and the expenses for claims rise. Because silicone has a low surface tension, and weighs less than perc, it can penetrate fabric fibers more quickly, deliver the detergent and rinse away dirt much more gently. And, unlike other solvents, liquid silicone is chemically inert, meaning it does not interact with fabric fibers; clothes are cleaned gently with virtually no dye removal, so claim costs can be reduced significantly. GreenEarth’s remarkably gentle properties are attracting more and more interest from upscale hotel chains, textile and garment manufacturers.
More revenue. The chemical properties of silicone provide for the optimum in cleaning efficiency since a wider variety of clothes can be cleaned with significantly less risk of damage to the clothes. The ability to clean silks, sequins, beads and other specialty items means a bottom line benefit since garments no longer need to be outsourced for processing.

Competitive edge. By way of comparison, perc has enormous handling and environmental costs, hydrocarbon has the same challenges to a lesser degree, and CO₂ cleaning sets difficult wrinkles that adds to finishing costs, does not clean about 30% of the garments presented and has a high machinery cost. Professional wet cleaning has extremely high finishing costs given the need to stretch all “dry clean only” garments back to their original size and shape. Overall, GreenEarth allows for optimal operating efficiencies with a reasonable initial capital cost of machinery.

Criteria #4: GreenEarth fits in a package plant footprint.

Dry cleaning is a service business. As such, customers seek providers of the service who can deliver a quality product, on time, with convenience.

Both independently and with GreenEarth’s partner Procter & Gamble, a great deal of consumer research has been conducted about the preferences of upscale dry cleaning users. And while the obvious preferences of having it “right and ready” are always noted, focus group studies of these users also point out some other important factors.

Customers prefer on-site cleaning. 50% of dry cleaning customers do not like to leave their cleaning at a location that does not do the work on the premises. They are concerned about their good clothes being hauled to another location, risking lost garments, and also the lack of employee expertise found at most “drop stations”. Over the years, GreenEarth has gained much first hand knowledge of what happens when a full operating plant location is “dried up” into a drop station. Even though it is in the same location, the plant volume will shrink by approximately 50% when operated as a drop station rather than an operational plant over the course of a year. We believe the consumer research explains the result.

“When our local environmental regulators visited and looked over the GreenEarth information, they just said, ‘Good-bye. You won’t be seeing us again.”

Susan Langlais, Salome’s Dry Cleaner
New Brunswick, Canada
The ideal location offers drive-through. Some 70% of the dry cleaning consumers are women. Most would prefer a wide drive through with at-your-car valet service rather than having to come into the location. This is particularly true of mothers with children in the car.

Right-sized for profits. GreenEarth believes the ultimate dry cleaning service model is a fully operating plant (including shirt laundry) contained in 2,500 to 3,000 square feet of space with a double lane drive through attached. Such plants need to be located in high demographic areas where rents are significant. Given the limited amount of space that can be afforded, it is simply not possible to utilize other alternative “green” technologies, either CO₂ or wet cleaning, in these locations. Their equipment footprints make it prohibitive.

On the other hand, a 2,500-3,000 square foot location is ideal for GreenEarth equipment. This size plant is capable of generating in excess of $1 million in sales volume, making it economically sound not only from an operational viewpoint but also from a cost of real estate standpoint.

GreenEarth silicone is not only garment friendly, consumer friendly and environmentally friendly...it’s also property owner friendly!
### Available alternative

<table>
<thead>
<tr>
<th></th>
<th>Perc</th>
<th>DrySolv / Ensolv</th>
<th>DF2000 / EcoSolve</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chemical Properties</strong></td>
<td>Halogenated Hydrocarbon</td>
<td>nPropyl Bromide</td>
<td>Hydrocarbon</td>
</tr>
<tr>
<td><strong>Solvent Chemical Structure</strong></td>
<td>Carbon Organic</td>
<td>Carbon Organic</td>
<td>Carbon Organic</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>Strong ether-like smell</td>
<td>Strong ether-like smell</td>
<td>Slight petroleum smell</td>
</tr>
<tr>
<td><strong>Commercial Introduction</strong></td>
<td>1940s</td>
<td>2006</td>
<td>1993</td>
</tr>
<tr>
<td><strong># Machines U.S.</strong></td>
<td>&lt;25,000</td>
<td>&lt;100</td>
<td>&lt;10,000</td>
</tr>
<tr>
<td><strong>Machine System Cost</strong></td>
<td>$30,000 - $75,000</td>
<td>$40,000 - $75,000</td>
<td>$45,000 - $95,000</td>
</tr>
<tr>
<td><strong>IFI Performance Ratings</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Contamination</strong></td>
<td>Poor</td>
<td>Average</td>
<td>Average</td>
</tr>
<tr>
<td><strong>Health Issues</strong></td>
<td>Poor</td>
<td>Poor</td>
<td>Good</td>
</tr>
<tr>
<td><strong>Equipment Cost</strong></td>
<td>Excellent</td>
<td>Excellent</td>
<td>Average</td>
</tr>
<tr>
<td><strong>Operating Cost</strong></td>
<td>Excellent</td>
<td>Average</td>
<td>Average</td>
</tr>
<tr>
<td><strong>Variety of Garments</strong></td>
<td>Good</td>
<td>Average</td>
<td>Good</td>
</tr>
<tr>
<td><strong>Does it clean?</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Extensive, openly reported testing</strong></td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Physical Properties</strong></td>
<td>Clear liquid</td>
<td>Clear liquid</td>
<td>Clear liquid</td>
</tr>
<tr>
<td><strong>Surface Tension</strong></td>
<td>32</td>
<td>25.9</td>
<td>24 @ 68°F</td>
</tr>
<tr>
<td><strong>Solvent KB Value</strong></td>
<td>90</td>
<td>125</td>
<td>27</td>
</tr>
<tr>
<td><strong>Specific Weight</strong></td>
<td>13.6</td>
<td>11.0</td>
<td>6.6</td>
</tr>
<tr>
<td><strong>Flash Point</strong></td>
<td>None</td>
<td>None</td>
<td>142-147°F</td>
</tr>
<tr>
<td><strong>Machine Class</strong></td>
<td>IV</td>
<td>IV</td>
<td>IIIA</td>
</tr>
<tr>
<td><strong>VOC, HAP, TAC</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Permits Required</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Claims</strong></td>
<td>Baseline</td>
<td>Higher than perc</td>
<td>Less than perc</td>
</tr>
<tr>
<td><strong>Shrinkage Issues</strong></td>
<td>Some</td>
<td>Some</td>
<td>Some</td>
</tr>
<tr>
<td><strong>Color Fastness</strong></td>
<td>Average</td>
<td>Poor</td>
<td>Good</td>
</tr>
<tr>
<td><strong>Hand of Garment</strong></td>
<td>Average</td>
<td>Poor</td>
<td>Good</td>
</tr>
<tr>
<td><strong>Pre-sort Necessary</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Problem Garments</strong></td>
<td>Silks, beads, trims, vinyl, buttons, leather, cashmere</td>
<td>Silks, beads, trims, vinyl, buttons, leather, cashmere</td>
<td>Certain beads, trims, vinyl, button, certain colors</td>
</tr>
<tr>
<td><strong>Finishing</strong></td>
<td>Baseline</td>
<td>Similar to perc</td>
<td>Similar to perc</td>
</tr>
<tr>
<td><strong>Cycle Time</strong></td>
<td>35 - 55 minutes</td>
<td>35 - 45 minutes</td>
<td>47 - 65 minutes</td>
</tr>
<tr>
<td><strong>Operational &amp; Technical Support</strong></td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Marketing Support</strong></td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td><strong>Fees, Royalties</strong></td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Proprietary Products</strong></td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

1 Represents modification to IFI assessment by GreenEarth Cleaning, based on input from industry experts informed by in-use experience; K4 and Rynex represent industry reported performance, no IFI ratings exist. 2 Surface tension has a direct correlation to cleaning ability. The lower the surface tension, the quicker the wetting and penetrating ability for cleaning to take place.
### Available alternatives at-a-glance

<table>
<thead>
<tr>
<th>Solvon K4 / NuSolve</th>
<th>Rynex</th>
<th>CO2</th>
<th>Wet Cleaning</th>
<th>GreenEarth Cleaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde Dibutyl Acetal</td>
<td>Dibpropylene Glycol, 1-Butyl Ether</td>
<td>Carbon dioxide</td>
<td>H2O</td>
<td>Dicarboxymethylpentasiloxane</td>
</tr>
<tr>
<td>Carbon Organic</td>
<td>Carbon Organic</td>
<td>NA Organic</td>
<td>NA Inorganic</td>
<td>Silica Inorganic</td>
</tr>
<tr>
<td>Strong pear-oil smell</td>
<td>Strong paint-like smell</td>
<td>Odorless</td>
<td>Odorless</td>
<td>Odorless</td>
</tr>
<tr>
<td>&lt;100</td>
<td>&lt;10</td>
<td>&lt;20</td>
<td>&lt;100</td>
<td>&lt;900</td>
</tr>
<tr>
<td>$54,000 - $105,000</td>
<td>$45,000 - $95,000</td>
<td>$125,000+</td>
<td>$50,000+</td>
<td>$38,000 – $95,000</td>
</tr>
</tbody>
</table>

| | | | | |
|---|---|---|---|
| Average | Average | Excellent | Excellent |
| NA | Average | Good | Good |
| Average | Average | Average | Good |
| Good | Average | Good | Good |
| Yes | Yes | Yes | Yes |
| No | No | Yes | Yes |
| Clear liquid | Clear Liquid | Colorless gas | Clear liquid | Clear liquid |
| 25.2 | 24 @ 77°F | NA | 72.7 @ 68°F | 17.4 |
| 75 | 65-75 | NA | NA | <20 |
| 6.9 | 7.6 | NA | 8.3 | 7.9 |
| 143°F | >200°F | None | None | 170°F |
| IIIA | IIIA | Pressure Vessel | ---- | IIIA |
| Yes | Yes | No | No | No |
| Yes | Yes | Rarely | Rarely | Rarely |
| Similar to perc | Similar to perc | Similar to perc | Higher than perc | Significantly less than perc |
| Some | Some | Some Acetate & Triacetate | Yes | None |
| Average | Average | Good | Good | Exceptional |
| Good | Average | Good | Good | Exceptional |
| Yes | Yes | Yes | Yes | Limited |
| Certain trims, beads, vinyl, ornamentation | Some trims | Acetates, triacetates, buttons, trims, buttons, elastics | Wool, natural fiber/skins, water soluble dyes | None |
| Similar to perc | Similar to perc | Significantly higher than perc (cold drying causes more wrinkles) | Significantly higher than perc (must be dried 80% blocked and stretched) | Significantly less than perc; less wrinkling, lint & static, large % can be tunneled |
| 60 - 80 minutes | 55 - 70 minutes | 35 - 45 minutes | 28 minutes (dried 80%) | 47-65 minutes |
| Yes | Yes | No | No | Yes |
| Limited | None | None | None | Significant |
| Proprietary products required (solvent, detergent, stabilizer and spotter) | NA | NA | NA | $2,500 license fee 1st machine (additional machines $1,250) |

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3 KBV is a measure of the strength of solvent alone in dissolving Kauri Gum (growing ability) GreenEarth without detergent has a low KBV, meaning that it is not itself a cleaning agent, but the unique chemical interaction that siloxanes have with detergent allows it to clean as effectively as higher KBV value solvents without risk of damage to the fabric.

4 100% wet cleaning processing.

Updated as of 9/20/2011
<table>
<thead>
<tr>
<th>Selected Environmental Achievements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A-Greener Cleaner, Bend, OR</strong></td>
</tr>
<tr>
<td><strong>Amy’s Green Dry Cleaning, Loveland, CO</strong></td>
</tr>
<tr>
<td><strong>Balfurd’s Cleaners, State College, PA</strong></td>
</tr>
<tr>
<td><strong>Bee Tailors &amp; Cleaners, Portland, OR</strong></td>
</tr>
<tr>
<td><strong>Best Cleaners, Madison, WI</strong></td>
</tr>
<tr>
<td><strong>Best Cleaners, Middletown, CT</strong></td>
</tr>
<tr>
<td><strong>Campbell’s Cleaners, Corvallis, OR</strong></td>
</tr>
<tr>
<td><strong>Classic Cleaners, Huntsville, AL</strong></td>
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<td><strong>ClassiCleaners, Alexandria, VA</strong></td>
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<tr>
<td><strong>Cleaner By Nature, Los Angeles, CA</strong></td>
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<tr>
<td><strong>Coast Street Dry Cleaners, Newport, OR</strong></td>
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<tr>
<td><strong>CO Mountain Cleaners, Silverthorne, CO</strong></td>
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<tr>
<td><strong>CO Mountain Cleaners, Silverthorne, CO</strong></td>
</tr>
<tr>
<td><strong>Couturier Cleaners, Los Angeles, CA</strong></td>
</tr>
<tr>
<td><strong>DeLuxe Dry Cleaners, Nova Scotia</strong></td>
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<tr>
<td><strong>Dry Cleaning Station, Winston-Salem, NC</strong></td>
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<tr>
<td><strong>Dry Cleaning Station, Owasso, OK</strong></td>
</tr>
<tr>
<td><strong>ecodrycleaners, Beaverton, OR</strong></td>
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<td><strong>GreenEarth Cleaners, Castle Rock, CO</strong></td>
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<td><strong>Jones Cleaning Center, Fresno, CA</strong></td>
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<td><strong>Pristine Green Cleaners, Denver, CO</strong></td>
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<td><strong>Royal Cleaners, Sunnyvale, CA</strong></td>
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<td><strong>Tip Top Cleaners, Portland, OR</strong></td>
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<td><strong>Today Cleaners, Bakersfield, CA</strong></td>
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<td><strong>Town &amp; Country Cleaners, Rochester NY</strong></td>
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<td><strong>Oregon DEQ Environmental Leadership</strong></td>
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<td><strong>PA House of Representatives Environmental Commendation</strong></td>
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<td><strong>WI Business Friend of the Environment, Pollution Prevention</strong></td>
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<td><strong>City of Huntsville, Industrial Air Pollution Control Achievement</strong></td>
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<td><strong>House of Representatives “Green The Capital” Award</strong></td>
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<td><strong>NAWBO/Wells Fargo Trailblazer</strong></td>
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<td><strong>Environmental Excellence in Business</strong></td>
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<td><strong>Illinois EPA “Green Solvent” Designation</strong></td>
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<td><strong>Best Specific Environmental Initiative, World Environment Day</strong></td>
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<td><strong>IFI Technology Trailblazer</strong></td>
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<td><strong>Green Business Ambassador Award, Liverpool Chamber</strong></td>
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<td><strong>Best Green Companies Award, Sunday Times</strong></td>
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<td><strong>San Joaquin Valley “Clean Air Now” Business Recognition</strong></td>
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<td><strong>Environmental Leadership Program Award, Bronze Member</strong></td>
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<td><strong>Small Business Environmental Stewardship Award from SBEAP</strong></td>
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<td><strong>City of Sunnyvale Environmental Achievement</strong></td>
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<td><strong>San Joaquin Valley “Clean Air Now” Business Recognition</strong></td>
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<td><strong>Monroe County Legislature Sustainable Business Award</strong></td>
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Updated 6/28/12
# GreenEarth® Cleaning Fact Sheet

## Composition and Properties


Same base ingredient used in many shampoos and conditioners, skin creams, deodorants and other personal care products.

Flash point: 170°F / Fire point: 190°F / Boiling point: 410°F

Surface tension: 17.42 dynes/cm at 77°F (25°C)

## Safety and Environmental Benefits

Non-toxic (oral, dermal, inhalation), determined by EPA Study protocol.

Non-irritating to skin, non-sensitizing. No immunosuppressant effects.

Not regulated by EPA, RCRA, CERCLA or California Prop 65.

Non-VOC. Specifically exempted under U.S. EPA regulations - degrades in atmosphere.

Listed by EPA as “SNAP” material, a good substance to use in place of ozone-depleting chemicals.

Affirmed by California Air Resources Board as an acceptable dry cleaning solvent alternative, and based on the available exposure information, the use of D3 in GreenEarth’s patented dry cleaning process will not pose a health risk to the public living near businesses using D3.

Confirmed by Environment Canada; does not constitute a danger to human life or heath (2008) and is not harmful to the environment (2012).

If released to the environment, degrades to sand (SiO2) and trace amounts of H2O and CO2.

Comprehensive independent testing on waste streams and exposure levels. Over 30 million dollars of independent testing and research confirms that GreenEarth’s liquid silicone is ecologically friendly and safe to use.

No special permits required; may qualify as alternative technology for special state funding or tax breaks.

## Cleaning, Production and Cost Benefits

Great cleaning: whites and colors. Low surface tension for faster penetration and soil removal. No odor. No shrinkage.

Cycle time: 47-65 minutes in dry to dry Class II A machine.

Gentle on all fabrics. No special handling for buttons, trims, sequins or other difficult garments. Significantly reduced claims: fewer damaged garments, fewer assembly errors due to less straggles.

Not aggressive toward dyes. Mix colors and fabrics, minimal load classification. Full loads. Increased productivity and efficiency.

Soft hand. Very little wrinkling or lint. Static-free. Decreased labor costs: less finishing and sorting time required.

Significantly lower disposal costs. Lower utility costs. Excellent solvent mileage, up to 2,000 pounds per gallon reported.

## License Costs and Benefits

$2,500 Annual Affiliation fee per machine. Second machine at same location is $1,250. GreenEarth Cleaning is a patented process. Any dry cleaner using silicone in their dry cleaning machine must have a license from GreenEarth. License also grants rights to the use of GreenEarth’s trademarked name and logo in store marketing.

Operational, technical and marketing support. Wide variety of high quality, customizable marketing materials. 24/7 website store locator.

## Equipment Required

- Runs in Class IIIA machine, with or without distillation. Filtration system can be cartridge, spin disk, all carbon, powder/clay or Kleen-Rite.
- Can run in most hydrocarbon machines.

GreenEarth does not sell machines, solvent or detergent. These can be selected from a variety of qualified vendors.

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v. 000012
Environmental Fate: D5 Silicone

Note: Silicone is a main ingredient in many personal care products. With dry cleaning, silicone does not go to a water treatment plant, it is recycled within the machine, in a closed loop process.
GreenEarth uses D$_5$ in a “closed loop” application that prevents exposure to people or the environment except during periods when solvent is being transferred to the machine. With this in mind, the following are relevant excerpts from the DERTFI study:

**Environmental Fate**
Based on its chemical/physical properties (not its closed loop application in dry cleaning), the following statements summarize the behavior of D$_5$:

**If released to soil:**
- Low water solubility and highly volatile.
- Does not accumulate in soil; half life ranges from a few hours to a few days.

**If released to air:**
- Highly volatile and will remain in air and not partition appreciably to other environmental compartments.
- Degrades by reaction with photo-chemically produced hydroxyl radicals. In urban and rural settings, this means D$_5$ has a half-life as short as a few hours to one day. In remote settings, its half-life is about 11 days.

**If released to water:**
- Will rapidly volatize to air or partition to suspended solids that deposit to sediments. Not likely to bio-concentrate appreciably or exhibit significant biomagnifications within food chain.
- Considered to be practically non-toxic to aquatic or sediment dwelling organisms.

**Human Health Risk**
Workers, consumers and general public were assessed for dermal and inhalation exposure to D$_5$ in dry cleaning establishments. The following summarizes the findings:

- Air sampling demonstrated the average employee exposure to be less than 0.22 parts per million in an 8-hour weighted time average.
- Margins of Safety (MOS) for workers were about 10,000 or greater; consumers would have a higher MOS. For men, women and children in the general public the MOS were all greater than 1,000,000.
- When compared to No Observed Effect Levels (NOEL), typical exposure clearly does not result in a significant human health hazard.

Source: Dry Cleaner Environmental Response Trust Fund of Illinois (DERTFI). Note: The full report can be obtained from GreenEarth Cleaning by calling Toll-Free 877-926-0895.
What is GreenEarth?  GreenEarth is the world’s largest brand of environmentally friendly dry cleaning. The GreenEarth brand refers to an exclusive dry cleaning process that replaces the petrochemical solvents traditionally used in dry cleaning with liquid silicone. Liquid silicone is an odorless, colorless solution that is an excellent carrier for detergents, has ideal properties for fabric care and is better for the environment. The GreenEarth Cleaning process is patented and its name and logo are trademarked (there are no “generic” forms of GreenEarth). Any dry cleaning in silicones, in any percentage, is covered under GreenEarth’s intellectual property.

Why is it better for the earth?  The liquid silicone used in the GreenEarth process is a safe, natural byproduct of sand. Liquid silicone degrades into sand (SiO₂) and trace amounts of water and carbon dioxide within days if spilled or disposed of. It is recognized as safe for air, soil and water, not classified as a volatile organic compound (VOC) by the U.S. EPA, and doesn’t contribute to smog formation. The EPA does not regulate silicone’s use in dry cleaning or any of its many other applications.

Why is it better for clothes?  Cleaning with GreenEarth is different in two important ways. First, silicone has very low surface tension and is very light in weight. Surface tension is what causes water to “bead” up on fabric. GreenEarth’s low surface tension allows it to more effectively penetrate the fabric fibers and lubricate away the dirt particles. And because it weighs a lot less than perc, silicone cleans and rinses more gently, reducing wear and tear on fabrics. Second, liquid silicone is chemically inert, meaning it does not chemically react with textile fibers or dyes during the cleaning process. This minimizes abrasion to and/or swelling of fabric fibers, eliminates traditional issues with removal of dyes and optical brighteners, helps maintain the soft hand of garments and prevents shrinkage. Result? A wider variety of garments can be safely cleaned with GreenEarth. And, unlike petroleum based solvents like perc or hydrocarbon, GreenEarth is odorless so it does not leave a chemical smell on clothes.

It’s gentle properties make GreenEarth the solution the fashion industry has been looking for. With the huge influx of delicately embroidered and highly embellished styles, “problem items” damaged by washing and/or traditional dry cleaning methods, more and more textile and garment manufacturers are specifically requesting the GreenEarth Cleaning method. Traditionally, garment manufacturers and dry cleaners have been in conflict with each other, each side predisposed to viewing the other as the party deserving of blame in cleaning damage claims. Manufacturers can trust that a GreenEarth licensed dry cleaner is using a gentle process that does not pose risk of damage, so they can work as a team on behalf of the consumer.

Why is it better for people?  Traditional dry cleaning leaves a telltale chemical odor on clothes, but clothes cleaned in GreenEarth have absolutely no odor. Clothes are fresh and clean right out of the bag. Most people find petrochemical residue distasteful, but some people with asthma and skin sensitivities find it can make them sick. GreenEarth solution is non-allergenic and non-irritating; it is so safe you could rub it on your skin. In fact, you probably already do. That’s because GreenEarth solution is pure liquid silicone, the same base ingredient found in everyday shampoos, conditioners, skin lotions and antiperspirants.

GreenEarth is also beneficial to people who work in or live near dry cleaning stores, because they no longer have to worry about the dangers of exposure to perc (short for perchloroethylene, the petrochemical used by most cleaners). According to the EPA, over-exposure to perc can lead to headaches, dizziness, skin and eye irritation and other health effects, including an increased risk of cancer. Seniors, young children and pregnant women are especially vulnerable. People who work in or live near a GreenEarth dry cleaning store have absolutely nothing to worry about. GreenEarth’s cleaning system is safe to work with, safe to dispose of and safe to breathe. Employees especially love working in an odorless dry cleaning shop.
Why is it better for dry cleaners? The cost of a dry cleaning machine capable of cleaning with GreenEarth machine is similar to that of a perc machine, so capital equipment costs are not more expensive. Most dry cleaners operating with hydrocarbon solvent can actually convert to GreenEarth without having to buy a new machine. And, it is easier to operate profitably with GreenEarth. Why? Because items cleaned in GreenEarth require less labor to process and finish. Costs for utilities, damage claims, permitting fees and disposal can also be lower. GreenEarth is also a highly marketable green dry cleaning alternative; consumers can see, smell and feel the difference it makes for their clothes.

Why is it better for landlords? GreenEarth’s non-toxic, non-hazardous rating means no ground contamination liability issues. This enables landlords to allow leases at locations where dry cleaners previously were not allowed. Because dry cleaning involves two separate trips, each a planned destination, landlords benefit from the strong weekly traffic a GreenEarth Affiliate store can bring. And, because GreenEarth Cleaning is the premiere brand of dry cleaning in the U.S., our strong quality image attracts many upscale and wonderfully loyal customers.

How does GreenEarth ensure the success of its Affiliates? The GreenEarth Cleaning system is a patented process, and our name and logo are trademarked, helping to ensure the protection of the exclusivity of our brand as we build a solid network of quality operators. GreenEarth Affiliates have access to our worldwide network of successful cleaners who share information, ideas and best practices. They receive free operational and technical support as well as free customer service support and expertise. Of particular value to Affiliates, and the landlords leasing to them, is the free planning and design of a wide range of high quality, customizable store marketing materials and services. GreenEarth makes it easy for stores to market their green difference, build trial and communicate with their customers. Affiliates also have access to top quality direct mail fulfillment services, a website that boosts their quality image and professionalism and a “Find a Store” mapping feature that directs customers to their store 24/7.

How many GreenEarth Affiliates are there? There are more than 1600 active licenses worldwide. Approximately half are in the United States.

How does GreenEarth compare to other alternative dry cleaning methods like CO2, professional wet cleaning and hydrocarbon? CO2 and professional wet-cleaning are both recognized as “green” dry cleaning methods; however less than one half of one percent of dry cleaners use them. The problem for dry cleaners, especially the smaller “mom and pop” cleaners who are the backbone of the industry, is that it is very difficult to make a living operating exclusively with either of these systems. CO2 machines can cost up to three times as much as traditional machines. Wetcleaning requires more labor to produce and finish garments; thus both options are considerably more expensive to operate. Hydrocarbon solvent has, until recently, been popular with dry cleaners looking for an alternative to perc because it is affordable and it is petroleum-based, so they are familiar with it. The concern about hydrocarbon solvent today is that it’s not as “green” as everyone thought originally. While certainly a big improvement over perc, hydrocarbon is classified by the EPA as a VOC, and a likely contributor to smog formation. Of particular concern to landlords is the likely necessity of a clean up if spilled. Like perc, hydrocarbon is also listed by the EPA as a neurotoxin and skin and eye irritant for workers. On the plus side, most machines designed to use hydrocarbon solvent are also able to run GreenEarth solution, so the health and environmental concerns with hydrocarbon can be alleviated without investment in new machinery.

How profitable are GreenEarth stores? GreenEarth stores are more successful because they cost less to operate and realize better sales volume. GreenEarth’s gentler process produces garments with a softer fabric “hand” and fewer wrinkles, so finishing and special handling costs go down, as do expenses for claims. Because there is significantly less need to classify loads by color with GreenEarth, fewer loads need to be run,
Do customers really care about eco-friendly dry cleaning? Yes. Consumers today are increasingly concerned about the environment and the business practices of companies with which they do business. Demand for “green” products and services has risen dramatically, in fact, 49% of consumers feel that it is “important for companies to not just be profitable, but to be mindful of their impact on the environment and society,” according to a study done by the National Marketing Institute.

I’ve heard that GreenEarth doesn’t clean as well as perc, is that true? No. GreenEarth silicone has different chemical properties than perc, so working with it is somewhat different. When GreenEarth was first introduced, the process was unfamiliar, detergents hadn’t yet been developed to work with it, and cleaning results did vary. Water soluble stains were a particular problem. With training on how to process garments in GreenEarth, and the advent of second, third and even fourth generation detergents developed with the help of our detergent partners and Procter & Gamble, cleaning results, including removal of water soluble stains, are excellent. A recent independent evaluation of alternative solvents by the IFI in 2007 rated GreenEarth as “excellent” in the categories of cleaning and ability to handle a variety of fabrics and trims.

What is the regulatory outlook for dry cleaning and GreenEarth? Dry cleaning is under increasing regulatory scrutiny. In 2006, the EPA issued new regulations banning new construction of perc dry cleaners in residential (co-located) buildings and phasing out of perc use at co-located cleaners. In 2008, California became the first state to ban both the use of perc and the purchase of new perc machines, a move widely regarded as the beginning of the end of perc solvents in the U.S. New Jersey has chosen to offer a “carrot” instead of a stick and is incentivizing dry cleaners to remove and/or replace perc machines with grants as high as $56,000. Massachusetts, New York, Texas and Toronto all have perc bans under consideration. If the industry continues to drag its feet when it comes to adopting “more environment friendly alternatives”, regulators can be expected to grow increasingly concerned and increase legislative pressure.

The outlook for GreenEarth is excellent. In 2008, after an exhaustive 18-month review of scientific data around the health and human safety of GreenEarth’s D₅ solution, California’s Air Resources Board (CARB) affirmed GreenEarth as an acceptable dry cleaning solvent alternative and based on the available exposure information, the use of D₅ in GreenEarth’s patented dry cleaning process will not pose risk to the public living near businesses using D₅. GreenEarth meets and exceeds all regulatory requirements and regulations in all states.

The outlook for GreenEarth is also excellent in Canada, where a routine screening assessment of D₅ silicone was initiated in 2008 as part of Environment Canada’s ongoing chemical safety program to assess the nature and extent of the potential danger posed by D₅. An independent expert Board of Review was requested by the honorable Peter Kent, MP and Minister of the Environment and three renowned toxicologists were appointed to undertake the review. In October of 2011, Environment Canada posted...
the Board’s formal assessment that D₅silicone “does not pose a danger to the environment or its biological diversity”. Furthermore, the Board concluded that “based on the information before it, the projected future uses of Siloxane D₅ will not pose a danger to the environment or its biological diversity”.

**Has there been much scientific testing and evaluation done on GreenEarth?** GreenEarth Cleaning is the only company to perform and openly report extensive testing on the environment and safety profile of its cleaning system. Over $30 million worth of independent testing and research has also been done on D₅ liquid silicone to confirm that there are no risks to public safety resulting from its use in all of its many applications, including dry cleaning. GreenEarth Cleaning also underwrote a comprehensive 2002 IFI Fellowship Study which compared the GreenEarth system to the industry standard perc system. The IFI declared it to be “as effective as perc with no environmental concerns”. Independent waste stream and air exposure testing confirmed that liquid silicone as used in daily dry cleaning operation exceeds all federal, state and local requirements for water and air safety.

Regulatory agency reviews of the available scientific data on D₅ silicone also offer independent perspective on the health and human safety profile of the GreenEarth Cleaning process. In 2009, Environment Canada published a final assessment on siloxanes that concluded D₅ was not a concern for human health. More recently in 2011, after a 14-month essentially de novo risk assessment taking into account all of the available, relevant, scientific information about siloxane D₅, Environment Canada issued a report from an independent expert Board of Review that concluded D₅ silicone “does not pose a danger to the environment or its biological diversity.” Canada’s assessment is consistent with the UK’s 2009 Environment Agency report which stated that, “No risks are identified to the air, water, and the terrestrial compartments, nor to humans exposed via the environment from the production and all uses of D₅.”

**I’ve heard that GreenEarth causes cancer, is that true?** Absolutely not. This rumor dates back to 2004-2005 news coverage around the release of a voluntary two-year bioassay study commissioned by Dow Corning, a manufacturer of D₅. News reporters like to create controversy, and a preliminary finding of this study allowed them to do just that. Follow-up research was conducted that determined that D₅ liquid silicone poses no risk to human health; however this research finding did not receive widespread news coverage—nor did subsequent scientific reviews by the Illinois EPA, California’s Air Resources Board (CARB), the government of Canada and the UK. Here is what matters:

- The EPA does not recognize D₅ silicone as a potential carcinogen or toxic air contaminant
- The EPA does not regulate the use of D₅ in dry cleaning or any other application
- The California Air Resources Board affirmed GreenEarth as an acceptable dry cleaning solvent alternative and based on the available exposure information, the use of D₅ in GreenEarth’s patented dry cleaning process does not pose an adverse health risk to the public living near businesses using D₅
- The Government of Canada conducted a thorough review of all the available D₅ data and determined that D₅ is not considered to be harmful to human health
- An evaluation by the United Kingdom’s UK Environment Agency concluded that D₅ is safe for the air, water and soil as well as for humans
- More than 50 different studies on D₅ demonstrate there is not a human health concern
- D₅ is one of the most extensively studied materials in consumer applications
- D₅ has been used safely for more than 40 years in many different applications
- D₅ can be shipped without any D.O.T. “hazardous materials handling” requirements

**What are the facts of the bioassay research?** As part of its commitment to the safe use of silicone, Dow Corning commissioned a two year Combined Chronic/Carcinogenicity Study on D₅ silicone. What is important to understand is that the study was designed to test the potential effects of D₅ as a chemical, not the safety of its use in the GreenEarth dry cleaning application. In the GreenEarth Cleaning process, silicone is kept inside...
the machine, where it is continuously recycled in a “closed loop” system. The bioassay research tested the effects of chronic inhalation of D₅ at various levels of exposure for varying lengths of time, on male and female lab rats. A small, but statistically significant number of rats in the test group, those exposed at the highest possible exposure level for the longest possible time, developed pre-cancerous indicators (not cancer). The rats affected in the study were exposed to the highest achievable vapor concentration of D₅, 160 ppm (parts per million), six hours a day continuously for two years. By contrast, people who work in a dry cleaning plant are exposed at the lowest measurable vapor concentration of D₅, less than 1 ppm on a time weighted average during an eight-hour workday. In order to better understand the test findings, follow up research was conducted by the Silicones Environmental, Health and Safety Council (SEHSC), the same group that conducted the original test. This research concluded that the effects observed in the original study were rat-specific and concluded that D₅ does not pose a health risk to humans. This is because silicone is “read” by the female rat pituitary as dopamine, a naturally occurring chemical that can upset the balance of progesterone and estrogen and in turn lead to uterine tumors. The biological pathway that causes rats to react this way does not exist in humans, so the scientific experts concluded that the risks are rat-specific; there is no risk to human health. This conclusion was supported by a number of scientific experts, including the Society of Toxicologists. The safety of a food or chemical is often a matter of degree. Salt, aspirin and even water can all be toxic at high levels, but because their intended applications do not exceed safe limits, and because they provide benefits when used appropriately, we use them every day without concern.

I am seeing a lot of “organic” dry cleaning claims, is GreenEarth organic? No. And that is a good thing. There is nothing green about organic dry cleaning. Organic, as it relates to chemistry, refers to anything with a carbon backbone. Scientifically, gasoline and asphalt are organic. Dry cleaners who market themselves this way are purposefully misleading the consumer.

I have noticed dry cleaners claiming to be biodegradable. Is GreenEarth biodegradable? In describing dry cleaning solvents, the term biodegradable is very similar to “organic” in that it is frequently used in “green washing”. Just because a chemical biodegrades does not mean it biodegrades into non-hazardous substances. GreenEarth is a closed loop system, it is continuously recycled within the machine. If it were to be released to the environment, because of its unique chemical and physical properties, it would rapidly and safely degrade into its three natural components of sand (SiO₂), water and carbon dioxide primarily through indirect photolysis. This is true regardless of where it was deposited into the environment (e.g. air, soil or water) due to its relatively great vapor pressure and volatility, which causes it to migrate mainly into the air.

What do operators need to do to convert to GreenEarth? The first step will be to get acquainted to make sure that the “fit” is right. We like to partner with like-minded business owners who put customers, quality and environmental responsibility first; this is the best way we know to protect their investment and ours. Next they will want to learn about any local regulations they would need to comply with and assess their equipment and supply compatibility. GreenEarth has done extensive testing and has pre-approved a number of different machines, detergents and spotting agents, to make selection of a quality system easier. The final step is to sign a Letter of Understanding, making the membership application official. Once they join as an Affiliate, operators will receive a membership kit and we will begin working with them to make sure their installation and conversion go smoothly.
Selected GreenEarth Landlord References

Aim Property Management
1500 Standiford Ave.
PO Box 4057
Modesto, CA 95352

Alger LaHood
20233 Mack Ave.
Grosse Pointe Woods, MI 48236

Amado Branas
1944 SW 82 Place
Miami, FL 33155

Apricot Tree, LLC
11620 Wilshire Blvd.
Los Angeles, CA 90025

B.W.S.C, LLC Rubenstein
6310 Lamar Ave., Ste. 220
Overland Park, KS 66202

Baxter Properties, LLC
PO Box 241869
Los Angeles, CA

Berkshire Holdings, Inc
13420 Roe Ave.
Leawood, KS 66209

Blue Sphere Deerfield Plaza
PO Box 56855
Jacksonville, FL

Bob Gibson
1010 Kent Mews Ct.
Winston-Salem, NC 27104

Burke Town Centre
PO Box 6149
Hicksville, NY

Business Properties
17631 Fitch
Irvine, CA 92614

BVS Montrose
1720 Post Card Rd.
Fairfield, CT

CBRE
1150 Santa Monica Blvd.
Suite 1600
Los Angeles, CA 90025

Carbondale Commercial
1117 Village Rd., Ste. A
Carbondale, CO

Catt’s Realty
829 W. Main St.
Gaylord, MI

Cecilia Quick Doby Industrial One, LLC
18902 Redondo Circle
Huntington Beach, CA

Centerwood S/C Rappaport Mgt
8405 Greensboro Dr., Ste. 830
McLean, VA

Centro NP LLC
24043 Network Place
Chicago, IL

Citiscrape Property Management
3450 Third Street, Ste. A
San Francisco, CA

CNT Investments, LLC
PO Box 8177
San Jose, CA

Coates & Sowards
1725 S. Bascom Ave
Campbell, CA

Comar Realty
2900 Linden Lane, Ste. 300
Silver Springs, MD

Cornerstone of Los Gatos
1631 Willow St., Ste. 225
San Jose, CA

Creighton Development
900 Pine Island Rd.
Cape Coral, FL

Dana Butcher & Associates
1690 W. Shaw, #220
Fresno, CA

Darren Smith/Tom Smith Mgmt. Co.
6420 W. 95th Street, Ste. 202
Overland Park, KS

Davis Marcus Partners
1 Appleton St.
Boston, MA

DCHP Development Co.
P.O. Box 5089 c/o 500 Reading Corp.
Aspen, CO

DSL Company
3501 Jambooree Rd., N. Tower, Ste. 5000
Newport Beach, CA

De Anza Properties
920 W. Fremont Ave.
Sunnyvale, CA

Donahue Schriber
200 E. Baker St., #100
Costa Mesa, CA

Duckett-Wilson Development
11150 Santa Monica Blvd., Ste. 760
Los Angeles, CA

E&A LLC Dept 2315
PO Box 822315
Philadelphia, PA

Elford Development
1220 Dublin Rd.
Columbus, OH

Eric Sedman
28605 Wagon Rd.
Agoura Hills, CA

Forsyth Enterprises
904 Morena Ct. Ballwin
St. Louis, MO

Gateway Buena Park, Inc
File 54289
Los Angeles, CA

Glenwood Development
3651 E. Baseline Rd.
Gilbert, AZ

Glenwood Hillandale Co, LLC
9525 Birkdale Crossing Dr., Ste. 200
Huntersville, NC

Godwin Group, LLC
1002 NE 23rd Court
Ankeny, IA

Golden West Properties
9255 W Sunset Blvd, Ste. 320
West Hollywood, CA

Green Valley Corp.
777 N. First St., #600
San Jose, CA

Gulf Coast Commercial Management, Inc.
3120 Rogerdale, Ste 150
Houston, TX

HCL East Highlands Ranch
23456 Hawthorne Blvd., Ste. 120
Torrance, CA

HPI Products, Inc.
222 Sylvanie St.
St. Joseph, MO

Hamilton Partners
300 Park Blvd., Ste. 500
Itasca, IL

To request an environmental engineering report, call Tim Maxwell on our Toll Free line 877-926-0895 or send an email to tmaxwell@greenearthcleaning.com
<table>
<thead>
<tr>
<th>Landlord Reference</th>
<th>Contact Information</th>
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<tr>
<td>Harsch Investment Properties</td>
<td>LeRoy Carmon 639 Highway 172 Durango, CO</td>
</tr>
<tr>
<td>523 South Shore Centre</td>
<td>Neelsville E&amp;A PO Box 822459 Philadelphia, PA</td>
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<tr>
<td>West Alameda, CA</td>
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<tr>
<td>Hayfield SC Beatty Mgt.</td>
<td>Lincoln Property Company 36 NE 2nd St., Ste. 180 Miami, FL</td>
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<td>McLean, VA 22102</td>
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<tr>
<td>Healdsburg Realty</td>
<td>Lori Gay BHR, Inc. 1815 W. 1st Ave., Ste. 122 Mesa, AZ</td>
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<tr>
<td>709 Healdsburg Ave.</td>
<td>Neil Bergstrom 525 Avenida Del Verdor San Clemente, CA 92672</td>
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<td>PO Box 9274</td>
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<td>2850 Clover Street</td>
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<tr>
<td>Joshua Green/Mr. Jude</td>
<td>Marilyn Bonnenfant 655 Skyline Blvd. Reno, NV</td>
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<td>1425 4th Ave., Ste. 420</td>
<td>Oil Capital Leasing &amp; Management 8908 S. Yale Ave., Ste. 400 Tulsa, OK</td>
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<td>311 W. Murray</td>
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<tr>
<td>Kimco Realty</td>
<td>Muller Company 5901 Priestly Dr. Carlsbad, CA 92008</td>
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<tr>
<td>1621-B S. Melrose Dr.</td>
<td>Pan Pacific Retail Properties P.O. Box 60000 San Francisco, CA</td>
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<td>Vista, CA</td>
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<tr>
<td>Lakeridge (E&amp;A)</td>
<td>Myers, Krumbein, LLC PO Box 6784 Richmond, VA</td>
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<tr>
<td>PO Box 822459</td>
<td>Peterson Group 8325 Broadway Ste. 202-88 Pearland, TX</td>
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<td>Philadelphia, PA</td>
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<tr>
<td>Larry Pool</td>
<td>Nadyne Foster 903 N. Bayfront Newport Beach, CA</td>
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<tr>
<td>20485 Steamboat Ct.</td>
<td>Peterson Management 12500 Fair Lakes Circle, Ste. 400 Fairfax, VA</td>
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<td>Bend, OR</td>
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## Selected GreenEarth Landlord References

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<tr>
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<tr>
<td>Picor Commercial Real Estate Services</td>
<td>1100 N. Wilmont, Ste. 200 Tucson, AZ</td>
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<td>4010 Moorpark, Ste. 111 San Jose, CA</td>
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<td>Production Realiance, LLC.</td>
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<td>Publix</td>
<td>3300 Publix Storage Parkway Lakeland, FL</td>
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<td>Public Storage</td>
<td>1550 Kennedy Causeway North Bay Village, FL</td>
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<td>RBF Development</td>
<td>1202 So. Hwy 89-91 Logan, UT</td>
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<td>RDB L.C.</td>
<td>936 W. 4th St. Davenport, IA</td>
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<td>Ralph Soroni</td>
<td>17896 Rockheast Rd. Castro Valley, CA</td>
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<td>Regency Centers</td>
<td>1850 Mt. Diablo Blvd., Ste. 225 Walnut Creek, CA</td>
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<td>Robert Hopkins</td>
<td>4500 College Blvd., Ste. 230 Overland Park, KS</td>
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<td>Robert L. Jensen &amp; Associates</td>
<td>2160 N. Fine Ave. Fresno, CA</td>
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<td>Romano Real Estate</td>
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<td>Ron Sibell</td>
<td>3611 Petite Creek Ct. Roseville, CA</td>
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<td>Royal Oaks Plaza Inc.</td>
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<td>18 East 4th St., Ste. 100 Cincinnati, OH</td>
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<td>Tri-Star Management</td>
<td>600 S. Highway 169 #701 St. Louis Park, MN</td>
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<td>Vanguard Reality Group</td>
<td>1201 Seven Locker Rd., Ste. 350 Patomac, MD</td>
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<td>Victor Sim</td>
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<td>Vista Equities Group</td>
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<td>WRI Golden State, LLC</td>
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<td>Woodcreek Village Shopping Ctr.</td>
<td>788 University Avenue Sacramento, CA</td>
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<td>Woodland Plaza</td>
<td>6735 Telegraph Rd., Ste. 110 Bloomfield Hills, MI</td>
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FOR IMMEDIATE RELEASE

01/10/2006  Contact Persons
                  Mary Downs 303-312-7047
                  Frank Montarelli 303-312-0780
                  General Inquiries  800 227-8917

Colorado Mountain Cleaners receives environmental award from EPA’s regional administrator

DENVER – U.S. Environmental Protection Agency Region 8 Administrator Robert E. Roberts today presented Colorado Mountain Cleaners of Silverthorne, Colo. with EPA’s Environmental Achievement Award.

Colorado Mountain Cleaners earned the award through its use of the GreenEarth® cleaning process, which is friendly to the environment, rather than the traditional method of dry cleaning using the chemical perchloroethylene, which often has negative effects upon the environment.

Roberts said, “It is a pleasure to recognize the initiative undertaken by Tom Rowland, a Colorado entrepreneur, who, with his partner Don Parks, chose to invest in their company in a way that would be profitable and help protect human health and the environment. Their actions at Colorado Mountain Cleaners have set the standard for others to follow.”

Rowland and his partner, the owners of Colorado Mountain Cleaners, decided to open this dry cleaning business in Silverthorne using the GreenEarth Cleaning process. Their efforts apply directly to the Pollution Prevention Act because pollution is prevented with the use of GreenEarth®, instead of perchloroethylene, and their conversion of a machine that normally uses perchloroethylene to GreenEarth helps reduce the use of perchloroethylene.

In 2004 Colorado Mountain Cleaners was awarded a Colorado Environmental Leadership Program silver award from the Colorado Department of Public Health and Environment. “For making decisions that result in significant benefits to the environment and to the citizens of Colorado.” In April 2005 Colorado Mountain Cleaners received the Drycleaner of the Year Award – 2005 from the Rocky Mountain Fabricare Association (an affiliate of the International Fabricare Institute) for the state of Colorado, Utah, and Wyoming.

GreenEarth® uses a modified liquid silicone similar to the base ingredients used in underarm deodorant, shaving creams and cosmetics. It degrades to sand, water and carbon dioxide and is listed by EPA as a substitute for ozone-depleting chemicals.

GreenEarth® has no known or expected health issues to the workers who use this product. It requires no special handling or special permits and is non-toxic whether contact is oral, dermal or from inhalation. The byproduct of the cleaning operation is so benign that Colorado Mountain Cleaners is permitted to place the material in containers and take it to a landfill.

Colorado Mountain Cleaners is one of the first companies in Colorado and the only company in the mountain region of Colorado to utilize the GreenEarth® cleaning system.

EPA Region 8 presents awards in four categories to individuals and groups external to the regional office. This award recognizes significant achievements in protection of public health or the environment, or in advancing the Agency’s current strategic goals. Among the criteria is an outstanding contribution to environmental protection through a single action, or by an ongoing action over an appreciable period of time.
March 19, 2010

William Hanks
CWH Real Estate Services
2510 Paddock Drive
Plant City, FL 33566

RE: Green Earth Dry Cleaners

Dear William:

It was a pleasure meeting with you and the Green Earth team to discuss the Green Earth dry cleaning process.

As you are well aware, Publix has not allowed dry cleaning plants within the centers in which we operate. After reviewing the process utilized by Green Earth Dry Cleaners, I have notified our teams that we will accept them into our centers. Subsequent to our meeting, you mentioned that Green Earth Dry Cleaners would have an interest in outparcels. I have directed our Asset Management team to be on the alert for outparcels within the centers we own that may be of interest.

Thank you for providing us the opportunity to learn more about Green Earth Dry Cleaners and their process. As you know, Publix is committed to sustainability.

Sincerely,

PUBLIX SUPER MARKETS, INC.

John Frazier
Signed in his absence to avoid delay

John Frazier
Vice President of Real Estate

Cc: File
Dry cleaning conversions: How Kimco is helping dry cleaners replace perc with environmentally safe alternatives

Posted by Scott Gerber on April 24, 2012

Many dry cleaners are at a turning point in their businesses, and Kimco is offering some new ways to help them round the corner. Dry cleaners are under increasing pressure to eliminate their use of perchloroethylene. Known as “perc” for short, the chemical has been used by nearly all dry cleaners since the 1930s.

But perc has been classified by the EPA as a “likely human carcinogen” if inhaled or consumed. This draws a direct line to dry cleaners, because vapor emissions and waste from their establishments can contaminate the soil, groundwater, and air, not to mention impact the shop environment for employees and customers. In addition, just this past February, the EPA concluded that perc can cause neurological, kidney, immune, and other health problems in addition to cancer.

It's doubtful any dry cleaner isn’t familiar with the major regulations that have come out over the past several years to reduce harmful emissions from dry cleaning operations. Dry cleaners located in residential buildings must stop using perc by 2020, according to national EPA regulations. And the California Air Resources Board is phasing out all perc dry cleaning statewide by 2023.

As a result, many dry cleaners have begun transitioning to non-toxic, environmentally safe cleaning agents and methods. Manufacturers are responding by producing more green dry cleaning technologies. And some landlords have adopted new policies requiring their dry cleaning tenants to eliminate their use of perc and convert their operations to green establishments.

Over the past several years, Kimco has taken some of the most aggressive strides to reduce the use of perc in its shopping centers and the associated environmental, health, and regulatory risks. We've updated our practices and procedures to encourage green dry cleaners to come to our centers and to facilitate the green conversion of existing perc dry cleaners. We have researched the various alternatives and have found several environmentally safe options for dry cleaners.
We wanted to write about our initiatives to make current and prospective Kimco dry cleaning tenants aware of their options. Also, if you’re in the dry cleaning or real estate industries, we hope this helps you understand what we’re doing as a company to support the various governmental regulations and bring greater safety to communities in which our shopping centers are located.

**Kimco’s Good Housekeeping Practices**

Current Kimco perc dry cleaning tenants that remain in good standing with respect to their lease agreement can continue to use perc and operate their business as they currently do until their lease expires. When their lease expires, if tenants desire to remain in the center, they have the option to either convert their business to one of the approved green technologies, or convert to what is known as a drop-off/pick-up store.

A drop-off location is a store that accepts clothes for dry cleaning, but all the dry cleaning is done off site. This is a popular choice for tenants that have multiple locations. In this case, tenants might have one facility where they dry clean clothes, along with several drop-off locations that feed it.

As far as green technologies go, the options that are generally widely accepted and approved for Kimco’s centers are:

1. **The GreenEarth Cleaning method.** GreenEarth Cleaning is used by over 1,500 dry cleaners worldwide, and is growing rapidly. The GreenEarth method uses liquid silicone — which is essentially liquefied sand — to carry detergent to garments to remove dirt and oil. Liquid silicone is odorless, colorless, and doesn’t react with fabric fibers. This lets it clean without abrasion, so garments stay smooth and don’t shrink. When liquid silicone is released into the environment, it breaks down into sand, water, and carbon dioxide. GreenEarth has an affiliate program, so Kimco dry cleaners can either license GreenEarth’s technology to use in their business, or open a Tide Dry Cleaners franchise location. Tide Dry Cleaners is a franchise that uses GreenEarth’s technology for all dry cleaning, and is an approved Kimco franchise. More information about GreenEarth and licensing its technology can be found on its website.

2. **Wet cleaning.** The wet cleaning process uses computer-controlled washers and dryers, and biodegradable, non-hazardous detergents and conditioners, similar to home laundry products. Wet cleaning is safe for many fabrics that are traditionally dry cleaned, including silks, woolens, linens, suede, and leather. All waste is disposed of through existing drains and can be handled by the local waste water treatment facility. Wet cleaning typically whitens whites very well and is highly effective at removing water-based stains.

3. **Liquid carbon dioxide cleaning process.** Liquid carbon dioxide has a gas-like consistency and a low surface tension. This lets it function as a very effective solvent when combined with recyclable detergents. Once garments are cleaned through the liquid carbon dioxide process, excess dirt and detergent is distilled from wash fluid. Residue is collected and recycled.
Carbon dioxide gas is removed from the machine using a compressor and the gas is sent back to the storage tank for reuse. Heat is not needed to dry clothes, eliminating the risk of heat-related damage and setting any stains that might not have been removed during the wash cycle. The process also has excellent color fastness.

It is important to note that the hydrocarbon cleaning process using solvents such as Exxon-Mobil’s DF-2000 or Chevron Phillips’ EcoSolv, which are sometimes perceived as green alternatives, are not truly green. These petroleum-based solvents contain volatile organic compounds, like perc, and are thus treated as hazardous materials. If they leaked into the soil or groundwater, a cleanup might be required. Although better and safer than perc, and less costly to remediate, these solvents pose many of the same risks and problems as perc, so Kimco does not consider hydrocarbon cleaning an acceptable alternative to perc.

Once tenants adopt a green cleaning method, several important business benefits are available to them. Green cleaning creates a competitive differentiation that tenants can use to create a positive narrative about their business and boost their marketing power. This can attract new customers, who are increasingly environmentally conscious.

Kimco is committed to working closely with our dry cleaning tenants so that conversions have as minimal of an impact as possible on their business. Our goal is to help our tenants eliminate environmental, financial, and regulatory risk regarding the use of perc, and improve the safety of the environments in which we operate.

We want our dry cleaning tenants to stay in their locations, and we’d like new tenants to come to Kimco centers that don’t already have a dry cleaning business. Our company mission has always been to support neighborhood shopping centers and their tenants — many of which are small, mom-and-pop shops — and dry cleaners are an integral part of that tenant dynamic.

And at the end of the day, we believe dry cleaners are great co-tenants to have in shopping centers. Dry cleaners require two visits — one to drop off clothes and one to pick them up, which helps bring more traffic to the center overall.

Over the years we have signed new leases with tenants employing some of these green technologies, and many more operating as drop-off locations. We have also had great success over the years converting several of our dry cleaning tenants to green cleaning and drop-off locations.

We’re planning to interview some of our dry cleaning tenants on our blog about their conversion experience to help you understand what’s involved and how to go about handling the process. Look for our first interview in the coming weeks.

If you have any questions about anything you’ve read here, feel free to leave a comment.
Government of Canada Concludes Siloxane D5 is Not Harmful to the Environment

OTTAWA, Ont. -- February 29, 2012 -- Canada’s Environment Minister, the Honourable Peter Kent, today announced that the Government of Canada has decided siloxane D5 is not harmful to the environment.

“This decision follows a thorough analysis of the Siloxane D5 Board of Review’s report, all existing available scientific information, and on-going international regulatory activities,” said Minister Kent. “It underlines our commitment to reach fact-based conclusions to protect Canadians’ health and the environment.”

Decamethylcyclopentasiloxane (D5) is an odorless, colourless liquid found in a number of personal care products, including deodorants, antiperspirants, cosmetics, shampoos, and body lotions. It is used in the production of silicone polymers and may also be used as a dry-cleaning solvent and in industrial cleaning.

Minister Kent received the Siloxane D5 Board of Review’s report last fall. The Minister convened the Board of Review in August 2010 with the mandate to consider information in the original Government of Canada 2009 siloxane D5 screening assessment, as well as new scientific information subsequently available. Based on the information before it, the Board concluded that siloxane D5 is not harmful to the environment.

Siloxane D5 is one of the chemicals identified under Canada's Chemicals Management Plan. The Plan takes immediate action to regulate chemicals harmful to human health or the environment and aims to make Canada a world leader in assessing and regulating chemicals used in thousands of industrial and consumer products.

For more information, please contact:

Adam Sweet
Press Secretary
Office of the Minister of the Environment
819-997-1441

Media Relations
Environment Canada
819-934-8008

Environment Canada’s Twitter page: http://twitter.com/environmentca
Environment Canada’s Facebook page: http://www.facebook.com/environmentcan
June 24, 2003

Mr. John Whitley
Best Cleaners of Madison
5704 Raymond Rd.
Madison, WI 53711

SUBJECT: Hazardous Waste Inspection and Change of Status

Dear Mr. Whitley:

On June 16, 2003 I inspected Best Cleaners of Madison located at 5704 Raymond Rd. in Madison. The purpose of my inspection was to evaluate compliance with Wisconsin’s hazardous waste regulations, as specified in chs. NR 600 – 690, Wis. Adm. Code. Your facility was classified as a “small quantity generator”, however, in July of 2002 Best Cleaners replaced the perchloroethylene dry cleaning unit with a “GreenEarth” dry cleaning unit.

Based on the inspection, the manufacturer’s literature, the material safety data sheets and your laboratory test data, the Department is changing your facility status to a “non-generator” of hazardous waste. As we discussed, your still bottoms can be sent to a licensed solid waste landfill. You should check with your solid waste service to see if the liquid content of the still bottoms is a problem (landfills are prohibited from disposing of free liquids). If the liquid content is too high, you may be able to add absorbent material, such as lint, to reduce the liquid content, or, the solid waste handler could use a licensed “solidification process” to allow for proper disposal.

I want to take this opportunity to commend Best Cleaners of Madison for choosing to change your dry cleaning process to a new system that does not generate hazardous waste.

If you have any questions on this letter or the attached information please contact me at (608) 275-3324 or Mark.Harder@dnr.state.wi.us.

Sincerely,

Mark Harder, P.E.
Waste Management Engineer
South Central Region

enc.

cc: Aggie Cook – WA/3
Research on the Safety of D₅

About D₅
Decamethylcyclopentasiloxane (D₅) is used as an ingredient in personal care products, including roll-on deodorants and antiperspirants, shampoos and hair conditioners, bath and soap products, and moisturizers and body lotions. It is an odorless, colorless non-oily siloxane fluid that acts as a “carrier” allowing products to spread smoothly and easily, providing a silky, luxurious feel during application. D₅ evaporates quickly, leaving a dry feeling after the personal care product is applied.

Key Research Findings and Relevance
D₅ is among the most extensively studied materials used in consumer and industrial applications. Decades of in-depth research on D₅ indicate it is safe when used as intended in consumer and industrial applications.

Over 50 studies have been conducted and almost all of these studies showed no effects. However, there were two findings observed in studies with laboratory rats that required further investigation. These two findings, increased liver weight and an increasing trend for uterine tumors, were shown to be effects that are specific to rats and that have no relevance to human health.

The increase in liver weight mentioned above was seen after repeated exposure to high concentrations of D₅. This response in rats, which does not affect the animal’s health, is well-documented and widely recognized. It is related to an increase of liver enzymes that metabolize and eliminate a material from the body. The increased liver weight reverses even while the D₅ exposure continues. The finding is not adverse, but is considered a natural adaptive change in rats, and does not represent a hazard to humans.

In a two-year, combined chronic/carcinogenicity study, rats were exposed by inhalation up to the highest possible vapor concentrations of D₅. There were no findings in male rats. Data showed a statistically significant trend for a certain type of tumor (uterine endometrial adenocarcinoma) in female rats exposed at the highest level—a level much higher than the low levels that consumers or workers might encounter. Based on the finding in female rats, silicone manufacturers conducted extensive follow-up research to determine the cause of the finding. Results of this research indicate that the finding seen in the two-year study occurred through a biological pathway that is specific to the rat and is not relevant to humans. D₅, which acts on the pituitary gland like dopamine, stimulated a change in balance between two hormones in the rat, estrogen and progesterone. This change is a biological response unique to rats. The same affect does not occur in humans following exposure to dopamine agonists such as D₅. Scientific studies have shown that although exposure to chemicals and drugs mimicking dopamine might result in uterine tumors in female rats, they would not do so in humans. Therefore, this observed effect does not indicate a potential health hazard to humans. This conclusion is supported by an expert panel of independent scientists who have reviewed the research results and have come to the same conclusion.
September 6, 2001

I am writing to clarify several aspects of Cyclic Siloxane as an alternative to Perchloroethylene in the dry-cleaning process.

Cyclic Siloxane (SB-32) is a Class IIIA solvent. It is not a Hazardous Air Pollutant (HAPS) and it is not a RCRA hazardous waste. The EPA has listed several VMS (Volatile Methyl Silicones) as substitutes for ozone depleting substances under the program known as the “Significant New Alternative Policy (SNAP), 59CFR13044, March 1994. In addition, Cyclic Siloxane is odorless and classified as a non-VOC (Volatile Organic Compound) unlike petroleum based products.

The Cyclic Siloxane cleaning process uses equipment similar to that of the perchloroethylene cleaning process with slight modifications which take into account the physical property differences of the silicone.

GE Silicone, SB-32 is nontoxic from an oral, dermal and inhalation standpoint as based on EPA protocol. This solvent is used extensively in personal care products such as antiperspirants, hair care, and skin care.

Approximately 150 sites across the country are currently using the Cyclic Siloxane dry cleaning process.

I hope you find this information helpful. Please do not hesitate to call me with any questions or concerns.

Regards,

Greg M. Wegener
Program Manager
SECTION 1. COMPANY IDENTIFICATION

COMPANY IDENTIFICATION
MANUFACTURER’S NAME: Shin-Etsu Chemical Co., Ltd.
ADDRESS: 6-1, 2-Chome, Ohpenachi, Chiyodaku, Tokyo, JAPAN
EMERGENCY TELEPHONE NUMBER:
330-630-9860(Shin-Etsu Silicones of America, Inc.)
600-424-9300(Chentrec) (24hrs) (Washington, D.C. USA)

TELEPHONE NUMBER FOR INFORMATION:
03-346-5121 (Tokyo, JAPAN)
330-630-9860 (Shin-Etsu Silicones of America, Inc.)
DATA PREPARED : 11/26/2003
LAST REVISION : 11/26/2003
DATA ISSUED : 11/26/2003

ISSUE NO : 200207600742
BASE NO : 7

PRODUCT NAME :
GEC-5

PRODUCT CLASSIFICATION:
Silicone Fluid

SECTION 2. COMPOSITION

SINGLE OR MIXTURE:
Single

CHEMICAL IDENTIFICATION:
Dimethylcyclopalsiloxane

HAZARDOUS COMPONENT(S)/(CAS NO.):
Decamethylcyclopentasiloxane/
(541-02-6) [Combustible Liquid] : 100%
(See Section 8 of this MSDS for Exposure Guideline)

SECTION 3. HAZARDS IDENTIFICATION

HAZARDS CLASSIFICATION:
None (based on INO)
Combustible Liquids (based on DOT)

FIRE AND EXPLOSION:
Combustible

POTENTIAL HEALTH EFFECT:
INHALATION ; No significant irritation expected from a single exposure.
SKIN contact ; May cause slight skin irritation.
Causes drying of skin.
EYES contact; May cause slight eyes irritation.
INGESTION; Low-harmful

SECTION 4. FIRST AID MEASURES

INHALATION; Remove to fresh air.
SKIN contact; Remove product from skin with dry cloth or towel, and wash exposed area with detergent.
EYES contact; Immediately flush with water for at least 15 minutes.
INGESTION; Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Call a physician immediately.

SECTION 5. FIRE FIGHTING MEASURES

FLASH POINT (method used):
77 degrees C (Closed cup)
FLAMMABLE LIMITS:
LOWER: Not measured UPPER: Not measured
EXTINGUISHING MEDIA:
Foam, dry chemical or carbon dioxide
SPECIAL FIRE FIGHTING PROCEDURE:
None
UNUSUAL FIRE AND EXPLOSION HAZARD:
None

SECTION 6. ACCIDENTAL RELEASE MEASURES

STEP TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Shut off all ignition sources.
Contain the spill or leak.
Scrape up with rag and place in container.

SECTION 7. HANDLING AND STORAGE

PRECAUTION TO BE TAKEN IN HANDLING AND STORING:
Keep container closed when not in use.
Store in a cool place.
Keep away from heat, sparks and flame.
Do not lay the container on its side.
Use with adequate ventilation.
Avoid prolonged breathing vapor.
Avoid contact with eyes and prolonged or repeated skin contact.
PRODUCT NAME: GEC-5

Keep out of reach of children.
* * * * * Information about the emptied container * * * * *
Do not re-use this container.
This container will be very hazardous when emptied.
Residues will be explosive or flammable.
Keep away from heat, sparks and flame.
Do not puncture or cut this container, and do not weld on or near this container.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE GUIDELINES:
ACGIH TLV-TWA: Not established,
OSHA PEL: Not established

RESPIRATORY PROTECTION (specify type):
Use respiratory protection unless adequate local exhaust ventilation is provided. (Organic vapor type)

VENTILATION:
LOCAL EXHAUST: Recommended
MECHANICAL (general): Adequate ventilation system
SPECIAL: Unknown
OTHER: Unknown

PROTECTIVE GLOVES:
Plastic film or rubber gloves

EYE PROTECTION:
Safety glasses

OTHER PROTECTIVE CLOTHING OR EQUIPMENT:
Eyewash equipment

WORK/HYGIENIC PRACTICES:
Keep away from heat, sparks and flame.
Avoid prolonged breathing vapor.
Avoid contact with eyes and prolonged or repeated skin contact.
Wash hands and gargle after handling.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT:
210 degrees C

VAPOR PRESSURE:
1.0mmHg (20 degrees C)

VAPOR DENSITY (air=1):
>1

SPECIFIC GRAVITY:
0.95 (25 degrees C)

MELTING POINT:
-38 degrees C
EVAPORATION RATE:
<1 (Butyl Acetate=1)
SOLUBILITY IN WATER:
Not soluble (<1 ppm)
APPEARANCE (color):
Colorless, transparent
APPEARANCE (form):
Fluid
ODOR:
Essentially odorless

SECTION 10. STABILITY AND REACTIVITY

STABILITY:
Stable
CONDITION TO AVOID:
None
INCOMPATIBILITY (material to avoid):
None
HAZARDOUS DECOMPOSITION OR BY-PRODUCT:
None
HAZARDOUS POLYMERIZATION:
Will not occur
CONDITION TO AVOID:
None

SECTION 11. TOXICOLOGICAL INFORMATION

SKIN IRRITATION:
Patch Test (24Hr/Open) : Almost Negative (1%)
EYE IRRITATION:
EYE-RABBIT : MILD
SENSITIZATION:
No evidence of sensitization
ACUTE TOXICITY (LD₅₀):
LD₅₀ (Oral/Rat) : >5g/kg
ACUTE TOXICITY (LC₅₀):
LC₅₀ (Inhalation/Rat) : >5g/m³/hr
(estimated by similar dimethylcyclosiloxane)

SUBACUTE TOXICITY:
Repeated inhalation or oral exposure of mice and rats to
decamethylcyclosiloxane and decamethylocyclopentasiloxane
produced an increase in liver size. No gross histopathological
or significant clinical chemistry effects were observed.
An increase in liver metabolizing enzymes, as well as a transient
increase in the number of normal cells (hyperplasia) followed by
an increase in cell size (hypertrophy) were determined to be the
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PRODUCT NAME: GEC-5

underlying causes of the liver enlargement. The biochemical mechanisms producing these effects are highly sensitive in rodents, while similar mechanisms in humans are insensitive.

CHRONIC TOXICITY:
No information is available.

CARCINOGENICITY:
NTP: Not listed, IARC: Not listed, OSHA REGULATED: Not listed

MUTAGENICITY:
Negative (Bacteria)

REPRODUCTIVE EFFECT:
No information is available.

TERATOGENIC EFFECT:
No information is available.

OTHER INFORMATION:
None

SECTION 12. ECOLOGICAL INFORMATION

BIODEGRADATION:
No evidence of biodegradation

BIOACCUMULATION:
May cause bioaccumulation.

AQUATIC TOXICITY:
No information is available.

OTHER INFORMATION:
Vapor undergoes indirectly photolysis in the troposphere.

SECTION 13. DISPOSAL CONSIDERATIONS

Can be burned in a chemical incinerator equipped with an afterburner and scrubber.
Do not dispose of the emptied container unless the contents have been completely removed and container has been flushed with a clean neutral solvent and then dried up.
Do not dispose the emptied container unlawfully.
Observe all federal, state, and local laws.

SECTION 14. TRANSPORT INFORMATION

<IMO INFORMATION>
ID No.:
None
CLASSIFICATION AND CLASS:
None
PACKAGING GROUP:
None
PROPER SHIPPING NAME:
PRODUCT NAME: GEC-5

None

TECHNICAL SHIPPING NAME:
None

MARINE POLLUTANT:
None

<DOT INFORMATION>

ID No. (49CFR 172.101):
NA 1993

HAZARD CLASS (49CFR 172.101):
None

PACKING GROUP (49CFR 172.101):
III

PROPER SHIPPING NAME (49CFR 172.101):
Combustible Liquids, N.O.S.

TECHNICAL SHIPPING NAME:
Organosiloxane

DOT REPORTABLE QUANTITY (49CFR 172.101, APP.):
Not applicable

HAZARD SUBSTANCE(S) NAME / (CAS No.), CONTENTS AND RQ

SECTION 15. REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA) STATUS:
Listed on the TSCA Inventory.

EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICAL SUBSTANCES
(EINECS) STATUS:
Listed on the EINECS.

LABELING ACCORDING TO EC-REGULATIONS REQUIRED:
SYMBOL: Not required
R-PHRASE: Not required
S-PHRASE: Not required
CONTAINS: None

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA)
TITLE III: SECTION 313 SUPPLIER NOTIFICATION:
This regulation requires submission of annual reports of toxic chemical(s) that appear in section 313 of the emergency planning and community Right-To-Know Act of 1986 and 40 CFR 372.
This information must be included in all MSDS’s that are copied and distributed for the material.
The toxic chemical(s) contained in this product are:
CHEMICAL NAME / (CAS No.) AND CONTENTS
** None **

CALIFORNIA PROPOSITION 65:
PRODUCT NAME: GEC-5

This regulation requires a warning for California Proposition 65 Chemical(s) under the statute.
The California Proposition 65 Chemical(s) contained in this product are:
CHEMICAL NAME/(CAS No.) AND CONTENTS
** None **

SECTION 16. OTHER INFORMATION

For Industrial Use Only

This materials safety data sheet is offered solely for your information, consideration and investigation.
The data described in this MSDS consist of data on literature, our acquisitional data and analogical inference by data of similar chemical substance or product.
Shin-Etsu Chemical Co., Ltd. provides no warranties, either express or implied, and assumes no responsibility for the accuracy or completeness of the data contained herein.
“I am able to clean more and worry less. I no longer worry about trim, such as beads and sequins, melting or fading. In fact, GreenEarth has allowed us to establish and promote our Premier Gown Cleaning Service, which has boosted sales in a market that has been on the soft side.”

Marty Riley, Master’s Mark Dry Cleaning
Spartanburg, SC

“We took a close look at how perc compares to the newer “green” processes in regards to both cleaning and impact on the environment. We found that while perc is good on greasy stains like oil and lipstick, GreenEarth, a liquid silicone cleaner that’s supposed to degrade to sand, carbon dioxide, and water was the best overall at removing stains. If it does break down as claimed, that’s good news for consumers and the planet.”

Good Housekeeping
July 28, 2011