

# **SILICONE WATER GUARD - MORE IN EVERY CAN, #1336 AND #1336L**

## **Silicone Water-Guard #1336L (375gram), More Value in every can**

By using CO<sub>2</sub> non-flammable gas as a propellant we maximize value for you and minimize carbon in the atmosphere. This detailed explanation will enable you to make a more informed choice of products. You will learn that in addition to enjoying superior performance, Water-Guard is also saving you a lot of money and providing a net environmental benefit.

Most aerosol water repellents include between 1/4 and 1/3 of their “net contents” stated weight in propane/isobutene, a blend of highly flammable gas refined from petroleum production. The blends have a flash point of about -100 degrees F. and are similar to the propane for your barbeque. These blends are 83% Carbon by weight.

An aerosol container that displays a net weight of 300 grams and contains 1/3 of its weight in flammable gas propellant has 100 grams of this blend. So you only get 200 grams of usable product. Since the propellant blend is 83% carbon by weight, you have purchased and discharged into the atmosphere 83 grams of carbon just for the purpose of emptying the can. This is 41.5 grams of carbon to unload each 100 grams of product.

Other marketers do not disclose how much propellant they use, but because it is heavy and cheaper than the useable product, they have incentive to use more. They want to be sure there is still plenty of gas left when the product is gone because no one will complain if the can still has pressure when the product is all gone.

Some of our competitors use only 1/4 of the net contents for propellant. In this case a 300 gram can has 75 grams of flammable gas blend. 75 grams x 83% carbon means that these cans are emptied by the discharge of 62 grams of carbon. They also give you 25 more grams of usable product. This is a significant improvement, but still using 27.5 grams of carbon to unload each 100 grams of product.

Now let's examine Atsko's Silicone Water-Guard #1336L. The can is 1.5 inches taller and shows a net weight of 375 grams. The 375 grams includes 364 grams of usable product, and 11 grams of propellant. The propellant, CO<sub>2</sub>, is a non-flammable gas drawn from a waste stream that was headed for atmospheric discharge. The CO<sub>2</sub> is purified for our use but would have gone into the air anyway so we have simply sequestered it temporarily with no net new carbon production. Our use of new carbon to empty the entire 300 grams of usable product is zero. That is 0.0 grams of carbon to unload each 100 grams of product.

As a point of interest, if our CO<sub>2</sub> was not a waste product or withdrawn from the air, the calculation would be as follows. 11 grams of CO<sub>2</sub> x 27% carbon by weight is 2.97 grams of carbon to empty 364 grams of usable product. That is only 0.816 grams of carbon to unload 100 grams of product. This is a 97% reduction of propellant carbon compared to the product with 25% propellant and a 97.3% reduction of propellant carbon from the product using 1/3 propellant. While not all aerosols can be emptied with CO<sub>2</sub>, it certainly should be done whenever possible. You should always choose CO<sub>2</sub> propellants when you purchase water repellents.

Safety beyond the reduced flammability of CO<sub>2</sub>.

Carbon Dioxide is beneficial even while our products are sitting on the shelf. It creates positive pressure in the container so there is no chance of degradation by water vapor from the air. There is also no risk of substance abuse. Propane/Isobutene is responsible for injury and death of individuals seeking to get high. There is no need to fear that CO<sub>2</sub> will be abused like propane/isobutene propellant.

If, during transport or storage, our product is exposed to excessive heat it has a much greater margin of safety than a 2 phase flammable gas propellant like Propane/Isobutene. Since it is already all gas and dissolved gas, it will not have a rapid expansion at a phase change temperature below the boiling point of the solvent. Our container carries the same heat warnings, but is much safer. We also use a solvent with a much higher flash point than the heptane in many competing products, but that is another topic.

End of life and product recycling.

CO<sub>2</sub> propellant provides additional benefits at the time of disposal. With CO<sub>2</sub>, there is never more than 20 seconds of pressure left when the product is all gone, and it is safe non-flammable carbon dioxide so you can quickly exhaust it leaving an empty can that is safe to dispose of with household mixed trash or metals for recycling. Regular aerosols using a mix of propane and isobutene can take several minutes to exhaust exposing you to risk of fire or explosion and possibly an opportunity for substance abuse. Those cans will chill significantly so that pressure seems to be gone, but as they rewarm the pressure increases and must be exhausted again before they are safe to dispose of. Even then, they will still contain some flammable gas.

If your community pulls anything at all from the mixed waste stream it is probably steel. Steel is the most recycled material on the planet. In the event that it manages to escape recycling, it is totally recyclable by nature. The iron atoms will combine with oxygen from the air in a process called oxidation, governed by the equation  $2\text{Fe} + 3\text{O}_2 = 2\text{FeO}_3$ . The end product, ferrous oxide, is the naturally occurring feed stock for making new steel.

How much usable product do you receive in each can? This is found by subtracting the weight of the propellant, from the net contents. Using cans marked 300 gram net weight there can be quite a range of usable product, and by law, the marketer does not have to tell you how much you are getting.

A product with 1/3 propellant gives you 200 grams of usable product.

A product with 1/4 propellant gives you 225 grams of usable product.

Silicone Water-Guard #1336L from Atsko gives you 364 grams of usable product. 375 gr - 11 gr of CO<sub>2</sub>.

Compared to a 300g product with 100 gr of propane/isobutene, #1336L is 364/200 or 82% more.

Compared to a 300g product with 72 gr of propane/isobutene, #1336L is 364/225 or 61.8% more.

In addition to comparing how much you get, we also have to compare the efficacy and coverage of the product. The coverage of such products per application is very similar but need to consider efficiency as measured by effectiveness and durability. These can vary widely on different materials so we test on cotton, nylon, and polyester.

Silicone Water-Guard will score at least 90 on the **ASTM** standard Water Spray Test **D-1913 (AATCC 22)**. We run this test 50 times without interruption to have a better model of real conditions. We achieve the same results in a single application that other brands achieve with 2 applications. This cuts time, costs, and resources in half compared to a product that suggests 2 applications. Our tests also indicate that Silicone Water-guard will often last twice as long.

Putting these factors together begins to show the real value of Silicone Water-Guard.

Relative to product with 1/4 propellant	1.618 X
Relative to product that requires 2 applications	2.00 X
Relative to a product that lasts ½ as long	2.00 X
Relative to product where all 3 apply	6.47 X

You could pay 6 times as much for Silicone Water-Guard and have equal value before even considering the effort, resources, and impact on the environment.

When a few ounces of an inexpensive product can renew, restore, and delay the recycling of a larger more expensive item like a coat or a tent, you are looking at one of the few value equations that is actually positive for you and the environment. This is the value you get from Silicone Water-Guard. This is the kind of value you will find with all Atsko/Sno-Seal Products. Learn about other ways to increase value and performance at [www.atsko.com](http://www.atsko.com).

### **Silicone Water-Guard, #1336 (300gram), More Value in every can**

By using CO2 non-flammable gas as a propellant we maximize value for you and minimize carbon in the atmosphere. This detailed explanation will enable you to make a more informed choice of products. You will learn that in addition to enjoying superior performance, Water-Guard is also saving you a lot of money and providing a net environmental benefit.

Most aerosol water repellents include between ¼ and 1/3 of their “net contents” stated weight in propane/isobutene, a blend of highly flammable gas refined from petroleum production. The blends have a flash point of about -100 degrees F. and are similar to the propane for your barbeque. These blends are 83% Carbon by weight.

An aerosol container that displays a net weight of 300 grams and contains 1/3 of its weight in flammable gas propellant has 100 grams of this blend. So you only get 200 grams of useable product. Since the propellant blend is 83% carbon by weight, you have purchased and discharged into the atmosphere 83 grams of carbon just for the purpose of emptying the can. This is 41.5 grams of carbon to unload each 100 grams of product.

Other marketers do not disclose how much propellant they use, but because it is heavy and cheaper than the useable product, they have incentive to use more. They want to be sure there is still plenty of gas left when the product is gone because no one will complain if the can still has pressure when the product is all gone. Some of our competitors use only ¼ of the net contents for propellant. In this case a 300gram can has 75 grams of flammable gas blend. 75 grams x 83% carbon means that

these cans are emptied by the discharge of 62 grams of carbon. They also give you 25 more grams of useable product. This is a significant improvement, but still using 27.5 grams of carbon to unload each 100 grams of product.

Now let's examine Atsko's Silicone Water-Guard #1336. The can is the same size and shows a net weight of 300 grams. The 300 grams is all useable product, and does not include any propellant. The propellant consists of 9 grams of CO2 non-flammable gas drawn from a waste stream that was headed for atmospheric discharge. The CO2 is purified for our use but would have gone into the air anyway so we have simply sequestered it temporarily with no net new carbon production. Our use of new carbon to empty the entire 300 grams of useable product is zero. That is 0.0 grams of carbon to unload each 100 grams of product.

As a point of interest, if our CO2 was not a waste product or withdrawn from the air, the calculation would be as follows. 9 grams of CO2 x 27% carbon by weight is 2.43 grams of carbon to empty 300 grams of useable product. That is only 0.81grams of carbon to unload 100 grams of product. This is a 96.3% reduction of propellant carbon from the product with 25% propellant and a 98.5% reduction of propellant carbon from the product using 1/3 propellant. While not all aerosols can be emptied with CO2, it certainly should be done where ever possible and you can favor CO2 propellants when you purchase water repellents.

So how much useable product do you receive in each can? This is found by simply subtracting the weight of the propellant from the net contents. Using cans marked 300 gram net weight there can be quite a range of usable product, and by law, the marketer does not have to tell you how much you are getting.

The product with 1/3 propellant gives you 200 grams of useable product.

The product with 1/4 propellant gives you 225 grams of useable product.

Silicone Water-Guard from Atsko gives you 300 grams of useable product, before we add the propellant.

In addition to comparing how much usable product you get, we also have to compare the efficacy and coverage of the product. The coverage of such products per application is very similar, but there can be great differences in effectiveness and durability. These can vary widely on different materials so we test on cotton, nylon, and polyester.

Silicone Water-Guard will score at least 90 on the **ASTM** standard Water Spray Test **D-1913 (AATCC 22)**. We run this test 50 times without interruption to have a better model of real conditions. We achieve the same results in a single application that other brands achieve with 2 applications. This cuts time, costs, and resources in half compared to a product that requires 2 applications. We also anticipate that Silicone Water-guard will last twice as long.

Putting these factors together begins to show the real value of Silicone Water-Guard.

Relative to product with 1/3 propellant	150%
Relative to product that requires 2 applications	200%
Relative to a product that lasts ½ as long	200%

Relative to product where all 3 apply

600%

You could pay 6 times as much for Silicone Water-Guard and have equal value before even considering the effort, resources, and impact on the environment.

When a few ounces of an inexpensive product can renew, restore, and delay the recycling of a larger more expensive item like a coat or a tent, you are looking at one of the few value equations that is actually positive for you and the environment. This is the value you get from Silicone Water-Guard. This is the kind of value you will find with all Atsko/Sno-Seal Products.