**What happens if a dog takes a static pulse anti-barking collar into the water?**

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**Abstract**

A waterproof static pulse Petsafe BC103 is bench tested submerged under fresh water, and under salt water, to see what it does to the function and output. The output in air with almost no resistance is around 1.3 milli Amps, with resistance the output was so low it would not register a reading and was subjectively mildly aversive. Under fresh water subjectively the output was reduced by around half and the output was so low objectively the amp meter would not detect a reading. In salt water the output subjectively was absent and objectively was so low the amp meter would not detect a reading. The manufacturer does not recommend that the unit is repeatedly submerged. It would appear that the Petsafe BC103 will not harm a dog should the dog take it into a swimming pool. The dog will, however, be able to bark with impunity. A waterproof anti-barking collar is recommended by the author for use where submersion is possible, but also in extremely dusty conditions where dust can cause a non-water proof device to cease functioning.

**Introduction**

A common question posed by owners of nuisance barking dogs using a static pulse anti-barking collar is “what happens to my dog should it jump into my swimming pool or water feature then barks activating the static pulse anti-barking collar?” I set out to answer this question.

**Materials and Methods**

A Petsafe BC103 manufactured in 2005 with a proprietary battery outputting 6.08 Volts on a uni-t brand voltmeter was used together with 6 litres of fresh Brisbane tap water and 4 heaped teaspoons of salt.

The Petsafe BC103 is an automatic vibration activated device stepping upwards from levels one to seven if re-triggered, with 3 seconds in between each level where the device will not re-trigger. After one minute of no triggering, the device automatically resets to level one. Only level one was tested. The Petsafe BC103 was reset to level one between each of the three stages by waiting for one minute. An alternate method for re-setting would be to remove the battery and discharge the device until it will not discharge to simply spend any trace of battery power in the circuit, then replace the battery.

Two persons manipulated the Petsafe BC103 simultaneously. The first person held both metal probes with bare hands (which normally contact the dog and deliver the static pulse correction) and simultaneously held the attachments of the amp meter in contact with the probes, to measure amp output. Amp output and subjective strength of the static pulse were noted. The second person triggered the static pulse by twisting a .5 cm diameter corrugated profile metal rod directly against the vibration sensing probe situated in
between the two metal probes being held. The vibration created by twisting the
corrugated metal rod against the vibration sensing probe simulates triggering of the
device by the vibration of the barking of the wearing dog. The simulation was repeated
without holding the two metal probes and just holding the amp meter in contact with the
two metal probes while triggering static pulse.

Three situations were simulated; (1) Not in water, both holding the metal probes with the
amp meter, and without holding the probes but with the amp meter held onto the metal
probes (2) repeating the procedure in (1) but with the Petsafe BC103 submerged in 6
litres of fresh tap water (3) repeating the procedure in (2) after adding 4 heaped teaspoons
of table salt and dissolving into the 6 litres of fresh tap water.

Results

Not in water and simultaneously holding the two metal probes while triggering, the amp
meter did not change from zero and the static pulse was subjectively mildly aversive.
When only the amp meter was in contact with the two metal probes and no hands were in
contact, it read 1.3 milli Amps.

Submerged in fresh water and while holding the two metal probes, the amp meter read
zero and the static pulse was reduced by up to one half subjectively gauged. When only
the amp meter was in contact with the two metal probes and not hands, it read zero milli
Amps.

After adding the 4 teaspoons of salt and while holding the two metal probes, the amp
meter read zero and the static pulse was subjectively indetectable. When only the amp
meter was in contact with the two metal probes, it read zero milli Amps.

Discussion

The Petsafe BC103 is a waterproof device. A non-waterproof device submerged will
cease functioning. Owners of dogs need to be aware of the potential for their dog to swim
either in a pool, landscape water feature, or to dunk their head and neck into a deep water
bowl in play or on a hot day in an effort to keep cool. Water play may permanently
damage any collar mounted anti-barking device that is not waterproof, causing it to not
trigger at all. However, most static pulse delivering anti-barking devices are at least water
resistant and will withstand rain or splashes of water.

The Petsafe BC103 will not be damaged by full water submersion when the proprietary
battery is correctly fitted, though the manufacturer does not recommend this is done
repeatedly. When submerged in fresh water the output is diminished, and when
submerged in salty water the output is indetectable. It is believed that the electrons
delivering the static pulse are more strongly attracted to the salt in the water than to the
other metal probe, hence the static correction dissipates entirely into the water instead of
along the neck skin between the two probes. Fresh tap water reduced the static pulse also, but did not eliminate it as the salty water did.

While the two metal probes were in contact with skin, the increased resistance provided by the skin diminished the amp output to levels indetectable by the amp meter. Air provides little resistance by comparison so amp readings were available when the two metal probes were not in contact with skin.

Swimming pools generally contain ions from either salt or chlorine, hence if a dog goes swimming in the family pool while wearing a Petsafe BC103, while the anti-barking device is submerged the dog can bark without experiencing a static correction and the anti-barking collar will not be damaged though the manufacturer does not recommend repeated submersion.

It is further noted anecdotally that extremely dry dusty conditions, such as experienced in outback Australia, may damage anti-barking devices that are not waterproof. Apparently the dust penetrates the device causing it to cease functioning. The author recommends fully waterproof anti-barking devices are chosen for both dry dusty conditions as well as where water submersion is possible.