

Waterproofing Personal Electronic Devices?Liquipel ^[1]



Gone are the days of bulky cases that [water](#) ^[2] proof your personal electronic device at the expense of functionality. A new product is making a splash at electronics trade and innovation shows^[1]. Liquipel is a nanocoating applied through patented machinery and a patent pending process that can [water](#) ^[2] proof a personal electronic device without changing the functionality, appearance, or feel of the device ^[2]. The [coating](#) ^[3] can be applied to electronic devices like phones after they have been purchased, in bulk as an inventory pre-[treatment](#) ^[4] process, or they can be applied during the manufacturing process^[3].

The [coating](#) ^[3] is comprised of proprietary [nanoparticles](#) ^[5] that are adhered to the device through a [Chemical Vapor Deposition](#) ^[6] ([CVD](#) ^[7]) process. The device is placed in a vacuum chamber where a gas filled with [nanoparticle](#) ^[8] precursors is introduced. Ionized particles are then introduced to the vacuum chamber, causing the vapor to decompose and the [nanoparticles](#) ^[5] to bond to the device at the molecular level. The entire process can be completed within a half hour, with the total turnaround time for the service estimated to be 2 days. Over 25 devices can

currently be coated with [Liquipel](#) [9] and the cost is well under a hundred dollars. The company claims its coatings will last for years, outlasting the devices useful lifetime in most cases.

References

1. Anon. [Liquipel Wins Edison Award](#) [10]. [Internet]. Submitted . Available from: <http://finance.yahoo.com/news/liquipel-wins-edison-award-003400231.html> [11]
2. Anon. [Grand Award Winner: Liquipel](#) [12]. [Internet]. 2012 . Available from: <http://www.popsci.com/bown/2012/product/liquipel> [13]
3. Anon. [Liquipel: Wet and Wired](#) [14]. [Internet]. 2012 . Available from: <http://www.liquipel.com/> [15]

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Product Name:

- [Liquipel](#) [17]

Development Stage:

- [Available, but not Ubiquitous](#) [18]

Key Words:

- [CVD](#) [7]
- [Hydrophobic](#) [19]
- [Waterproofing](#) [20]
- [Liquipel](#) [9]
- [Coating](#) [3]

Mechanism:

- [Passive Nanostructure](#) [21]

Summary:

This product creates a new category of waterproof devices, effectively protecting personal electronics [22] while maintaining aesthetic and functional appeal.[1] [2]

References

1. Anon. Liquipel Wins Edison Award [10]. [Internet]. Submitted . Available from: <http://finance.yahoo.com/news/liquipel-wins-edison-award-003400231.html> [11]
2. Anon. Liquipel: Wet and Wired [14]. [Internet]. 2012 . Available from: <http://www.liquipel.com/> [15]

Function:

- Water Proofing [23]

Source:

Liquipel Wins Edison Award [10]

Liquipel: Wet and Wired [14]

Material:

- Proprietary [24]

Source:

Grand Award Winner: Liquipel [12]

Benefit Summary:

Potential Benefits: Over 80 million cell phones are damaged annually to moisture damage, driving phone sales growth, but also driving resource depletion of rare and expensive elements used to make electronic devices. This technology has the potential to reduce resource consumption and create disruptive changes in the way the electronic devices market operates.[1]

References

1. Anon. Grand Award Winner: Liquipel [12]. [Internet]. 2012 . Available from: <http://www.popsci.com/bown/2012/product/liquipel> [13]

Benefit:

- Resource Efficiency [25]
- Environmental Quality [26]

Risk Summary:

The risks of this innovation are unknown due to proprietary nature of process and materials [27] used in the coating [3]. The risks during manufacturing are likely analogous to those associated with the CVD [7] process.

Risk Characterization:

- Uncertain [28]

Risk Assessment:

- Ecological Risks [29]
- Health Risks [30]

Facility:

- Information Systems [31]

Activity:

- Waterproofing [32]



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Source URL: <http://nice.asu.edu/nano/waterproofing-personal-electronic-devices%E2%80%94liquipel>

Links:

- [1] <http://nice.asu.edu/nano/waterproofing-personal-electronic-devices%E2%80%94liquipel>
- [2] <http://nice.asu.edu/keywords/water>
- [3] <http://nice.asu.edu/keywords/coating>
- [4] <http://nice.asu.edu/keywords/treatment>
- [5] <http://nice.asu.edu/keywords/nanoparticles>
- [6] <http://nice.asu.edu/keywords/chemical-vapor-deposition>
- [7] <http://nice.asu.edu/keywords/cvd>
- [8] <http://nice.asu.edu/keywords/nanoparticle>
- [9] <http://nice.asu.edu/keywords/liquipel>
- [10] <http://nice.asu.edu/biblio/liquipel-wins-edison-award>
- [11] <http://finance.yahoo.com/news/liquipel-wins-edison-award-003400231.html>
- [12] <http://nice.asu.edu/biblio/grand-award-winner-liquipel>
- [13] <http://www.popsoci.com/bown/2012/product/liquipel>
- [14] <http://nice.asu.edu/biblio/liquipel-wet-and-wired>
- [15] <http://www.liquipel.com/>
- [16] <http://nice.asu.edu/users/tai-wallace>
- [17] <http://nice.asu.edu/product-name/liquipel>
- [18] <http://nice.asu.edu/development-stage/available-not-ubiquitous>
- [19] <http://nice.asu.edu/keywords/hydrophobic>
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- [21] <http://nice.asu.edu/mechanism/passive-nanostructure>
- [22] <http://nice.asu.edu/keywords/personal-electronics>
- [23] <http://nice.asu.edu/function/water-proofing>
- [24] <http://nice.asu.edu/material/proprietary>
- [25] <http://nice.asu.edu/benefit/resource-efficiency>
- [26] <http://nice.asu.edu/benefit/environmental-quality>
- [27] <http://nice.asu.edu/keywords/materials>
- [28] <http://nice.asu.edu/risk-characterization/uncertain>
- [29] <http://nice.asu.edu/risk-assessment/ecological-risks>
- [30] <http://nice.asu.edu/risk-assessment/health-risks>
- [31] <http://nice.asu.edu/facility/information-system>
- [32] <http://nice.asu.edu/activity/waterproofing>