

Evaluation of Ceramic Coatings for Cookware

PRODUCT NEWS

Part 2: Continued testing:

Background

DuPont regularly evaluates the performance of cookware available in the market. One methodology is through a battery of standard tests conducted in the DuPont Test Kitchen. In addition to our previous testing, we have recently evaluated a comprehensive range of ceramic-based coatings on the European market.

In the current evaluation, DuPont has concentrated mainly on long term non-stick properties and in home use durability.

Long term non-stick

While industry standards only measures the short term release properties (3-5 cooks), we extend testing to the point where the non-stick properties disappear or to a maximum of 320 cooks. The disappearance or failure of non-stick properties is based on rating systems accepted by the cookware industry.

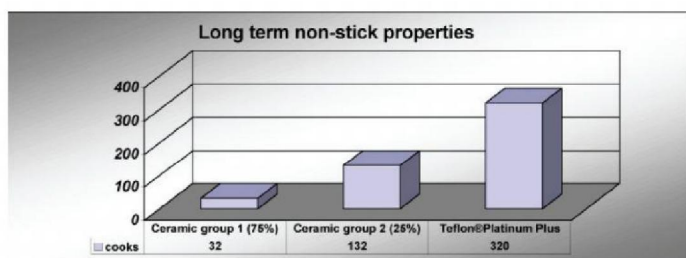


Chart 1.

Based on the non-stick performance, the ceramic coatings can be divided in 2 groups. Group1, which represents 75% of the investigated coatings, shows a significant decrease in non-stick properties after an average of 30 cooks (one month of use). Group 2, which represents 25% of the investigated coatings perform somewhat better at 132 cooks before losing non-stick performance. However, the Teflon® Coated cookware outperforms both classes, completing 320 cooks without losing their non-stick characteristics.



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Conclusion:

While the initial, short term release of ceramic coatings is good, the properties significantly decrease after some time, varying from the equivalent of 1 to 4.5 months. At the end of the test, i.e. the equivalent of more than 10 months of daily use, the performance of Teflon® Platinum Plus coatings was still excellent.

In home use

The in home use test is a combination of abrasion- and scratch resistance. A pan is heated and abused by a knife, a fork, a spatula and a wire whisk. After a measured time period the performance of the non-stick surface is rated against a 1 to 10 scale. A score of 10 represents a new and unused pan.

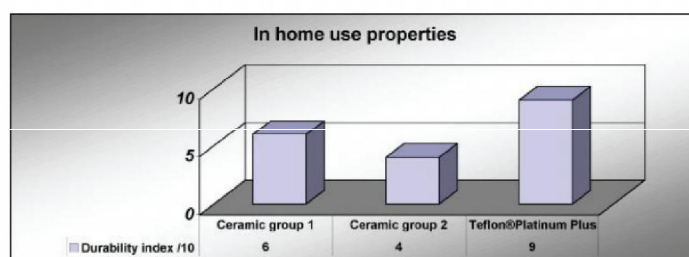


Chart 2.

The ceramic based cookware coatings that had the better non-stick performance (group 2), show the lowest abrasion- and scratch resistance.

Conclusion:

The tested ceramic coatings either deliver marginally acceptable release properties or scratch resistance, but not both. If not choosing Teflon® coated cookware, consumers will have to compromise and choose either one or the other property. In addition, also observed during the testing was that the ceramic coatings are also vulnerable to chipping off during in home use durability testing. Ref DuPont Ceramic testing, part 1: Evaluation of Ceramic Coatings for Cookware, 2008.

Teflon® Platinum Plus coatings at the same time provide excellent non-stick performance as well as abrasion and scratch resistance properties.

Teflon® Platinum Plus coatings were used in this analysis to correspond to an equivalent price point as the ceramic coatings evaluated. However, all cookware coated with Teflon® brand coatings outperforms the ceramic coatings investigated. Teflon® Classic, Teflon® Xtra and Teflon® Select non-stick coatings were also tested. For more details on these test results, please contact your DuPont representative.

Durability:

Durability is a combination of long term non-stick with abrasion and scratch resistance. For this test, the items investigated in the "in home use" test are submitted to the pancake release test until failure or to a maximum of 80 cooks.

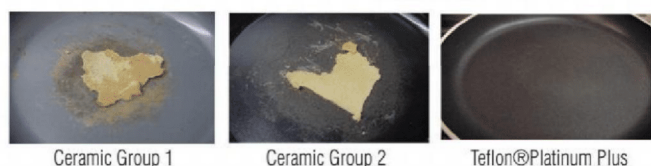
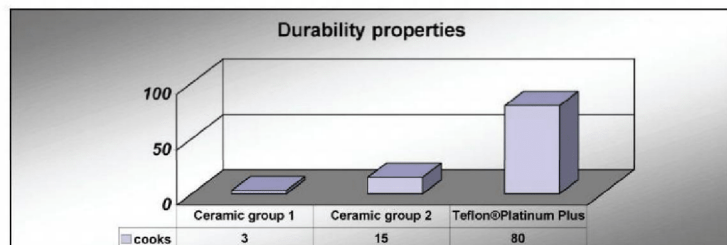


Chart 3.

Conclusion:

While normal in home use decreases the non-stick performance of ceramic coatings dramatically, it has no impact on the non-stick performance of cookware coated with Teflon® coatings.

The test shows that the non-stick properties of the ceramic coatings were dramatically reduced, as the non-stick properties were lost after 3 and 15 cooks respectively for the Groups 1 and 2.

The same test on Teflon® Platinum Plus coatings was stopped after 80 cooks without any loss in release.

Summary Conclusion:

These test results re-confirm that ceramic-based top-of-range cookware coatings should not be classified as non-stick, nor should they be considered to be as durable as Teflon® branded coatings.

Typical non-stick benefits like easy cook, easy clean, healthy cooking and dishwasher safe are not met with ceramic-based top-of-range cookware coatings.

Full life cycle assessments of environmental impacts including Greenhouse Gas Emissions, Energy Use, and Air Acidification demonstrate that the impact from coating manufacture and applications are small compared to the impacts from the manufacture of the pan's metal base and handle.

Based on consumer simulated "equivalent" non-stick cooking life, 1 pan coated with Teflon® Platinum Plus coating lasts longer than 9 pans of the best performing ceramic coated cookware. Since the production of new pans can be reduced 9 fold, a pan coated with Teflon® branded coating has significantly lower environmental impacts over the full life of the pan. Ref DuPont Ceramic testing, part 1: Evaluation of Ceramic Coatings for Cookware, 2008.

DuPont is committed to constantly develop the best available solutions in terms of durability, sustainability and potential for healthy, low-fat cooking to the mutual benefit to Retailers, consumers and the environment.

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