



Introducing Fusion® Titanium: The new sol-gel ceramic nonstick that outlasts all competitors tested!

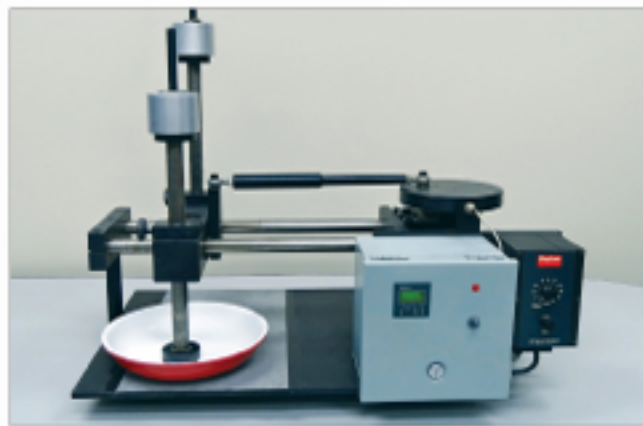
Whitford's Fusion Titanium is the latest breakthrough in sol-gel ceramic technology.

Fusion, launched four years ago, had been the technical leader in the sol-gel market, due to its superiority in release and durability.

New Fusion Titanium takes a giant step forward in durability and resistance to abrasion, far beyond any other sol-gel ceramic coating tested (we tested ten). That's due in part to reinforcing the coating with titanium-based particles.

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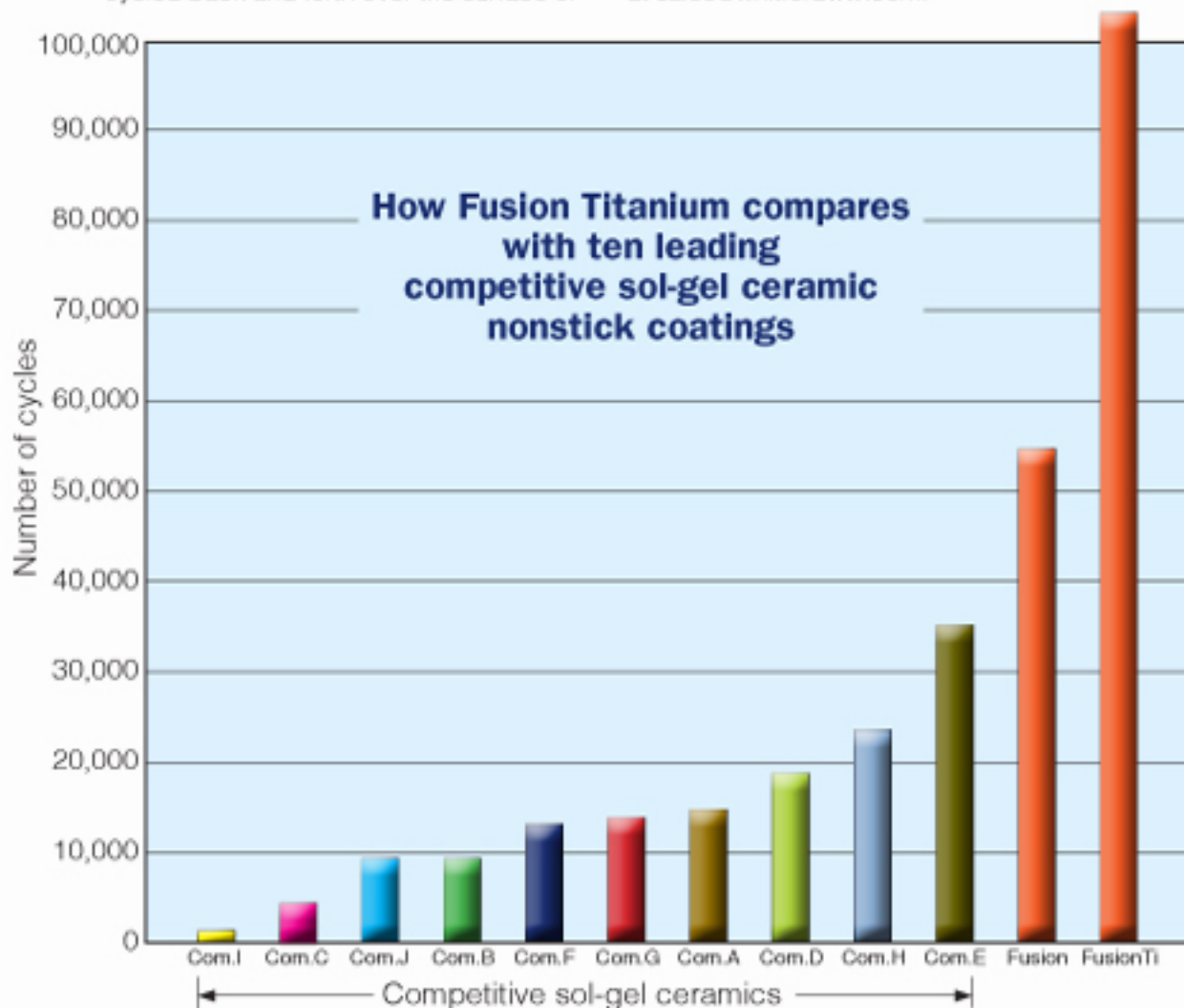
How Fusion Titanium performs against the competition

Whitford Test Method 135C uses the Reciprocating Abrasion Tester to measure a coating's ability to withstand rough, abrasive treatment.

A Scotch-Brite® #7447B abrasive pad is placed under 3 kilos of weight which is cycled back and forth over the surface of

the pan. The pad is changed every 1,000 cycles. The test continues until 10% of the substrate is exposed. Here's how Fusion and Fusion Titanium compare.

For more information, please contact your Whitford representative or contact us at sales@whitfordww.com.



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Laboratory Work Report

Project Title	Run TGA on submitted part coated with FusionTi		
LWR Number	28791	Report Date	August 7, 2018
Direct Customer	Chef Randall Group	Account Representative	KURT MECRAY

Background and Objectives

Background

A sample pan coated with FusionTi (Product code - 80-088/N12095 HONEY GINGER BASECOAT, 80-089/N11799 HONEY GINGER MET. TOPCOAT) was submitted to the analytical lab to execute thermal analysis. Although, the scope of this project is to make an attempt in support of claimed use temperature (550 °F) for HSN legal department, two data points at different temperatures (550 °F and 850 °F) were selected for thermal performance assessment.

Work Objective

1) Conduct thermal evaluation to determine the thermal stability of FusionTi at 550 °F and 850 °F respectively via TGA analysis.

Methods

ID	Test Description	Test Method Number	Date	Tested By
1	Thermal Gravimetric Analysis (TGA)	Whitford Internal	August 7, 2018	PC

Results and Discussion

To examine the thermal stability of this particular system, TGA analytical technique (weight loss percentage as a function of increasing temperature and isothermally held ~ 550 °F, ~ 850 °F for 120 minutes) was utilized, as shown in Figure 1 and Figure 2. By carefully inspecting the collected data, it can be concluded that this system displayed extremely high thermal stability and showed small weight loss percentage [(prior to entering isothermal phase = 550 °F ~ 0.848%, 850 °F ~ 1.389%), (during isothermal phase = 550 °F ~ 0.237%, 850 °F ~ 0.109%)].

The discovery of above observation can be used to deduce no significant weight loss events and/or degradation transitions were noticed up until designated final temperature set points.

Fusion Ti

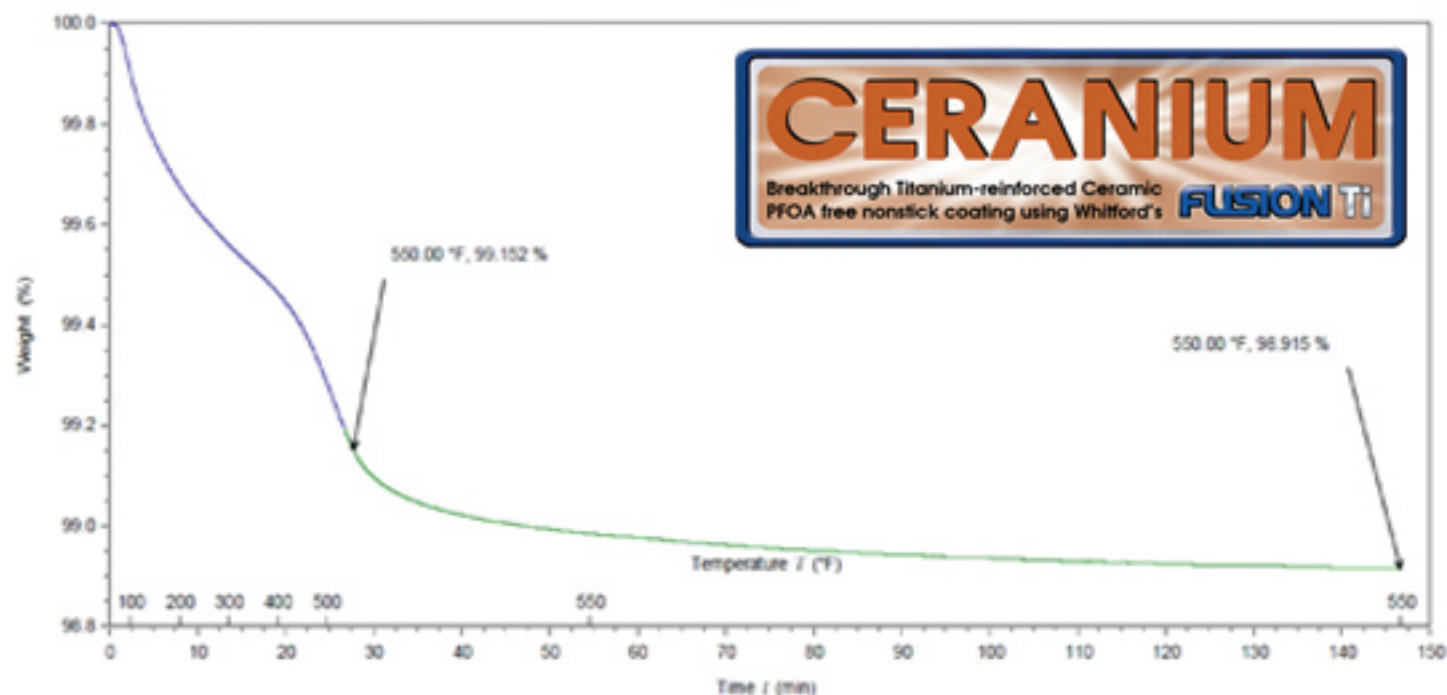


Figure 1. Isothermal temperature ~ 550 °F 120 minutes

Fusion Ti

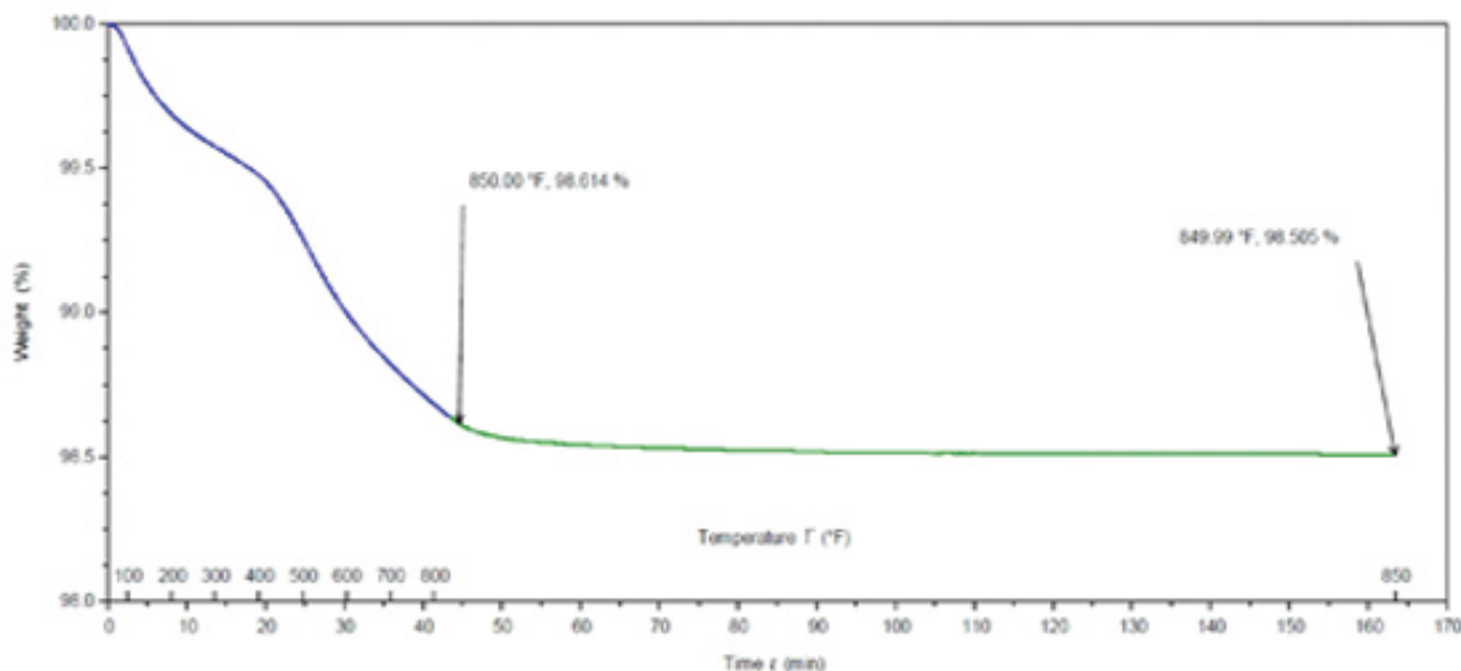


Figure 2. Isothermal temperature ~ 850 °F 120 minutes

Conclusions and Recommendations

The objective of performing thermal evaluation to determine thermal stability of FusionTi was accomplished. Thermal analysis showed no major degradation transitions prior to and during isothermal phase in the executed experiments; therefore, the claimed use-temperature of 550 °F for this system can be strongly supported.

Authorship

Prepared by	Punardeep Chhabra	Date	August 7, 2018
Approved by	Chih-Wei Liao	Date	August 7, 2018

**Subject: Proposition 65 Status of Nonstick Coating System Consisting of:
FUSION®Ti 80-089/N11799 Honey Ginger Metallic Topcoat over
FUSION®Ti 80-088/N12095 Honey Ginger Basecoat**

The purpose of this letter is to provide you with the status of the FUSION®Ti 80-089/N11799 Honey Ginger Metallic Topcoat, 80-088/N12095 Honey Ginger Basecoat, Nonstick Coating System under the "California Safe Drinking Water and Toxic Enforcement Act of 1986," commonly known as "Proposition 65". Proposition 65 requires the Governor of California to publish a list of chemicals "... known to the State to cause cancer or reproductive toxicity ..." and establishes two prohibitions regarding the use of these chemicals.

First, no person may knowingly expose any individual to a significant amount of a regulated chemical without first providing a "clear and reasonable warning" to the individual. Second, no person may knowingly discharge or release a significant amount of a listed chemical into drinking water or onto land where it will pass into a source of drinking water.

We have compared the chemicals used to formulate the FUSION®Ti 80-089/N11799 Honey Ginger Metallic Topcoat, 80-088/N12095 Honey Ginger Basecoat, Nonstick Coating System against the list of chemicals regulated by Proposition 65. The FUSION®Ti 80-089/N11799 Honey Ginger Metallic Topcoat, 80-088/N12095 Honey Ginger Basecoat, Nonstick Coating System does not contain any of the chemicals on the Proposition 65 list in its dry formulation in a form known to the State of California to cause cancer, birth defects, or other reproductive harm.

FUSION

The PFOA- & PTFE-free sol-gel nonstick from Whitford

The line of improved sol-gel "ceramic" nonstick coatings from Whitford

How new Fusion compares with conventional and other sol-gel nonstick coatings

Whitford launched Fusion in 2011 with important advantages over other "ceramic" nonsticks, such as a simpler, more user-friendly chemistry that makes preparation easier. *Fusion is a coating system based on sol-gel technology, a hybrid of organic and inorganic chemistry (see other side).*

Fusion vs conventional nonsticks

1. Fusion is totally free of any PTFE and PFOA, the two ingredients which, however unfairly, have received negative publicity recently (all so-called ceramic coatings are free of these).

2. Fusion (like other sol-gel nonsticks) can be taken to extreme temperatures (455°C/850°F). If for any reason a fry pan, for example, is left on high heat with nothing in it, the coating is far more likely to survive than conventional nonsticks, which begin to decompose at 345°C/650°F.

3. It is waterborne: handling, mixing and cleanup are accomplished with water.

4. It cures at a lower temperature, using less energy and saving money.

Fusion vs other "ceramic" nonsticks

Whitford research and development chemists have been working to improve the original version, and have now done so in three important ways:

1. **Better release:** Sol-gel nonsticks by definition of their unique chemistry have never had the release of today's PTFE-based nonsticks, but Fusion is

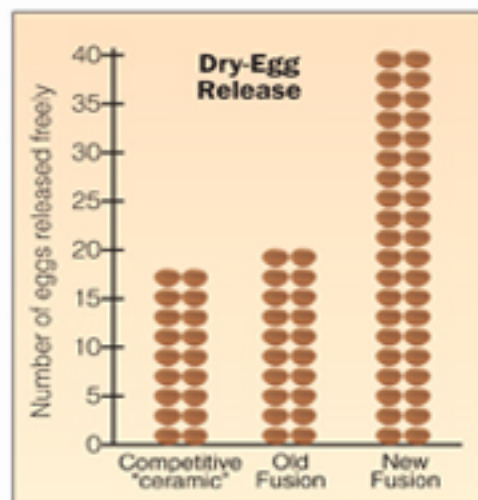
getting close. New Fusion has significantly better release than all other sol-gel nonsticks we've tested.

2. **Better stain resistance:** Ceramic coatings tend to have good stain resistance. But new technology has taken Fusion's ability to resist staining of all kinds even further.

3. **Improved gloss:** Fusion's improved technology enables an extra-dense surface that offers several benefits. One is the improved stain resistance mentioned. Another is a surface so compact, so devoid of surface irregularities, that it gives a higher gloss than all other "ceramic" nonsticks tested. This means that any pots or pans coated with Fusion have more eye-catching shine at point of sale.

Total regulatory compliance: *As far as we can tell, Fusion is the only sol-gel nonstick with a legal letter verifying that it is compliant with the EU and US FDA for food contact.*

For more information, please contact us.



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What is Fusion®?

**A more detailed and technical explanation
of this remarkable coating system.**

In its simplest terms, Fusion is a coating system based on sol-gel technology, a hybrid of organic and inorganic chemistry.

This is why, in the coatings industry, such sol-gels have come to be known as "ceramic" coatings, a term used primarily in marketing communications to describe Fusion and other coating systems with similar composition or performances.

The sol-gel process is a chemical synthesis technique widely used in the fields of materials science and ceramic engineering.

The applications for such products are numerous. For example, scientists have used them to produce the world's lightest materials as well as some of its toughest ceramics.

One of the largest application areas is coatings. Protective and decorative coatings can be applied to glass, metal and other types of substrates with these methods. It is in this area that Whitford developed Fusion as a nonstick coating.

A "sol" is a solution in which particles are suspended. These particles undergo hydrolysis and condensation polymerization to form a "gel". This occurs when the different components of Fusion are mixed together prior to application.

When this gel is applied as a coating and is subsequently dried, a hard, glass-like film is created. The matrix of Fusion is a polymer network made up of both organic and inorganic components. Moreover the Fusion coating system has some physical characteristics (hardness, thermal resistance, chemical resistance, appearance) similar to those of some categories of ceramic enamels.

The unique engineering behind Fusion allows us to get the best out of the inorganic and the organic worlds of ceramics and polymers: the material is tough, impermeable and thermally stable as a ceramic, yet it provides the chemical inertness and nonstick properties of a polymeric material.

***For more information, please contact your Whitford representative
or contact Whitford directly (see addresses below).***



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13 July 2018

**Subject: Food Contact Status of a Non-stick Coating System(s):
FUSION®Ti 80-089/N11799 Honey Ginger Metallic Topcoat over
FUSION®Ti 80-088/N12095 Honey Ginger Basecoat**

Title 21 of the Code of Federal Regulations ("21 CFR") contains all of the regulations administered by the USA Food and Drug Administration ("FDA") intended to keep food and drugs intended for human consumption safe.

One of these statutes, 21 CFR 170.39, defines the "Threshold of regulation for substances used in food-contact articles". The essence of this section is that certain food-contact articles, in this instance Fusion coating(s), are exempt from FDA food-contact regulations because they have demonstrated, via sophisticated laboratory analyses, they are below the threshold of regulation. This means that Fusion coating(s) have achieved the FDA's highest level of safety – a level so high that Fusion coating(s) are exempt from all FDA food-contact regulations.

To be granted an FDA exemption, Fusion 8088/8089 nonstick coating(s) were sent to an independent, 3rd-party laboratory to be tested using the most rigorous FDA-accepted methodologies. The test data, composition, application, and use of the Fusion coating(s) were then sent to FDA and reviewed by the Agency's scientists. Following their review, FDA concluded that Fusion 8088/8089 coating(s) met and satisfied the Threshold of Regulation criteria. The Fusion 8088/8089 exemption now appears on FDA's official web site.

We trust this information provides you with assurance that Fusion nonstick coating(s) comply with all FDA regulations and the Food, Drug and Cosmetic Act. Please contact your regional Whitford representative or me anytime we may be of further service.

For the Whitford Worldwide companies,
Sincerely,

Hilda Tan
AP Regulatory Manager

Raymond Chen
AP Regulatory Executive

Whitford

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12 July 2018

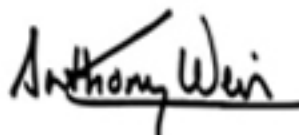
Mr. Randall Cornfield
Chef Randall
5723a Sunrise
Montreal, Quebec
H4W-1V9, Canada

Dear Mr. Cornfield:

This letter certifies that the Chef Randall Group has the right to use the following two registered trademarks of Whitford Corporation, "Whitford[®]" and "Fusion[®]", in the marketing, packaging and advertising of the Chef Randall Turbo Cookware brand and the Chef Randall Ceranium brand (the Products).

This authorization is limited to the Chef Randall Products listed above for as long as the coatings used on the Products are FusionTi provided by Whitford.

Sincerely,



Anthony Weir
Director, Whitford Worldwide

