

Ecoflex® 200FL Substrate Support Mat

Introduction

Unifrax is pleased to introduce Ecoflex® 200FL, the newest member of the Ecoflex support mat product family specifically developed for mechanical support of ceramic substrates used in emission control systems.

Ecoflex 200FL utilizes Saffil polycrystalline, high alumina fibers which have a proven history of long-term performance under all inlet gas temperatures up to 1000°C. It also presents superior erosion resistance, allowing it to provide robust design solutions without the need of wire-mesh rings or any other type of edge-treatment.

Ecoflex 200FL is flexible, has excellent handleability and is easy to assemble through a broad range of different canning techniques. Ecoflex 200FL is compatible with ultra thin wall (UTW), silicon carbide (SiC) and alumina titanate (AT) substrates.

The unique handling characteristics and proven long-term performance offered by Ecoflex 200FL make it the ideal solution for a wide range of emission control devices, including diesel oxidation catalysts (DOC), diesel particulate filters (DPF), selective catalyst reduction units (SCR), close-couple and underbody converters (gasoline, diesel and ethanol flex fuel).

Ecoflex 200FL is not affected by fuel condensates and/or urea.



Product Availability

Basis Weight*	Nominal Thickness**	Nominal Installed Gap
(g/m ²)	mm	mm
900	5.1	2.2
1100	6.2	2.7
1200	6.8	3.0
1300	7.3	3.2
1400	7.9	3.5
1600	9.0	4.0
1700	9.6	4.2
1800	10.1	4.5
2000	11.5	5.0
2400	13.5	6.0
3200	18.0	8.0
3300	18.9	8.2

*Basis Weight: Fiber + Binder

**Thickness measured @ 0.725 kPa

Additional basis weights available upon request.

Typical Composition & Properties

Polycrystalline Saffil Fibers	93.0 – 95.0%
Loss on Ignition	5.5 – 7.5%

Canning Performance

Ecoflex 200FL is typically installed at a nominal gap bulk density (GBD) of 0.40 g/cm³. The room temperature compression behavior of Ecoflex 200FL is shown in Figure 1. The GBD range for each specific application will be defined according to the requirements for holding force and substrate strength. Unifrax provides a global network of application engineering services and will provide a support mat recommendation specific to your system design.

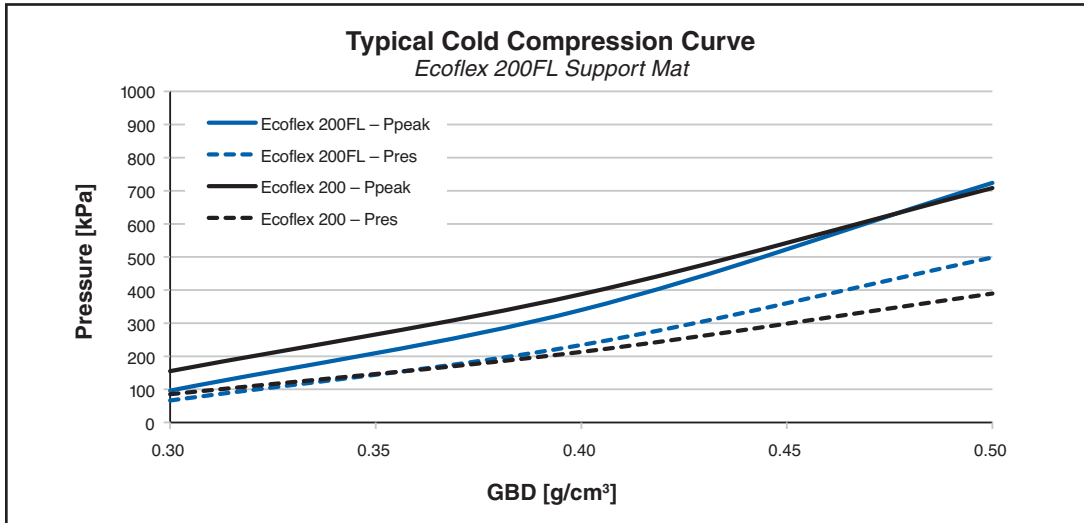


Figure 1: Typical Cold Compression Curve for Ecoflex 200FL support mat.

Erosion Resistance

Support mat erosion may occur as a result of improper support mat installation or due to lack of holding force of the fiber matrix. Different types of support mat are more susceptible to erosion than others. Ecoflex 200FL has been designed specifically to present a low erosion profile. Figure 2 presents comparative erosion resistance for different support mat types as a function of GBD.

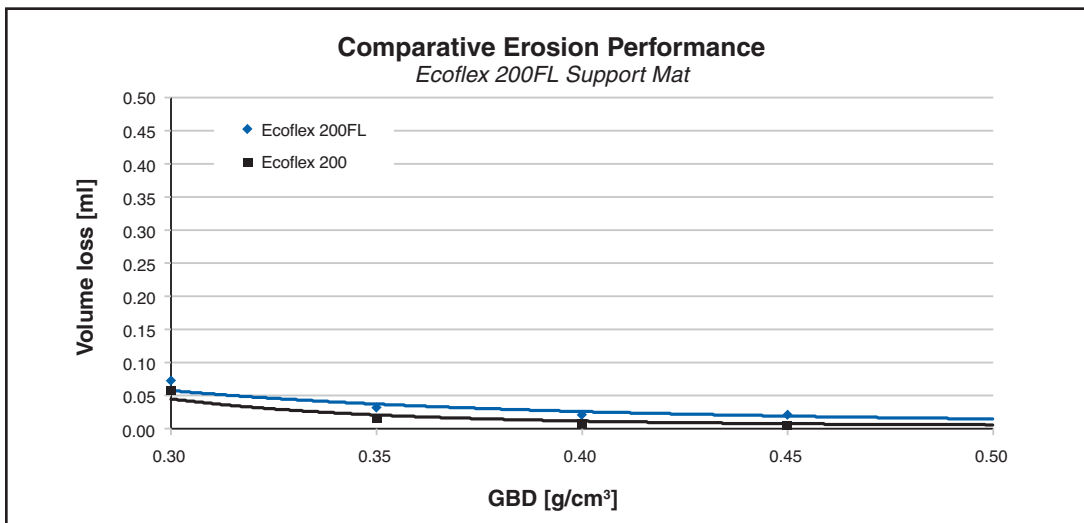


Figure 2: Comparative erosion data for Ecoflex 200FL support mat.

Friction Performance Data

Understanding how the support mat's friction coefficient influences canning and long-term performance is important to achieve a robust design. Unifrax is capable of measuring the friction coefficient between the support mat and the shell at room temperature (important during canning) and also at different operating temperatures (which is important after the converter is under normal operating conditions). Figure 3 presents Ecoflex 200FL performance at room temperature against stainless steel.

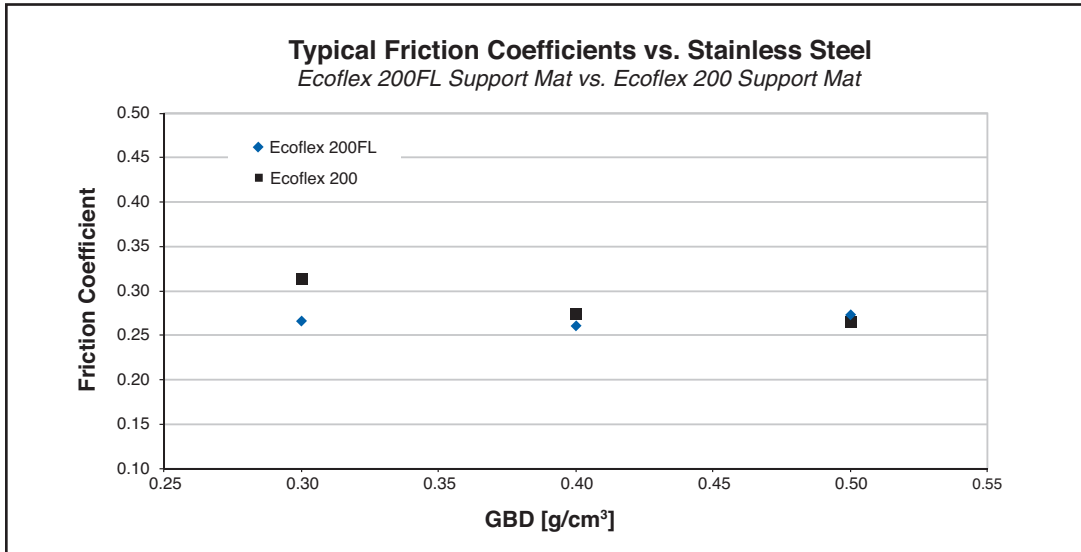


Figure 3: Comparative cold friction data for Ecoflex 200FL support mat.

Support Mat Aging Performance

Ecoflex 200FL is designed to present robust performance at operating temperatures above 1000°C. Figure 4 presents typical aged mat performance for Ecoflex 200FL at two different GBDs as a function of temperature. Factors such as design nominal gap and thermal shell expansion also influence support mat performance. Please contact our Application Engineering Department for additional information regarding the performance of Ecoflex 200FL under specific operating conditions.

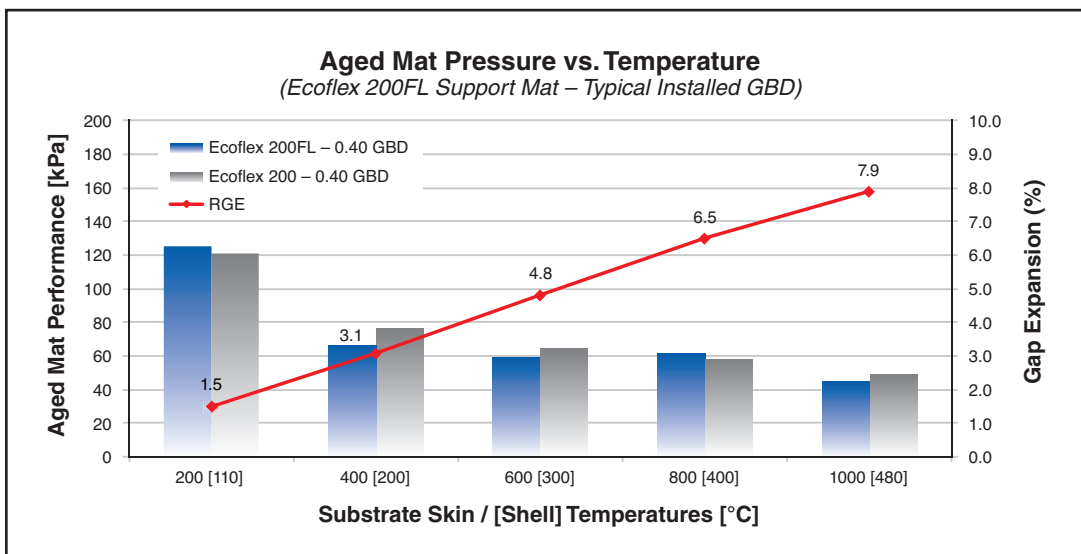


Figure 4: Ecoflex 200FL support mat aging test as a function of temperature.



Worldwide Technical Support

Unifrax is a worldwide sales and service organization with several international locations and representatives. The services that we provide include thermal modeling, system design engineering assistance, and failure analysis as well as technical exchange programs. For additional information regarding Ecoflex 200FL or any of our catalytic support mats, please contact the Unifrax Emission Control Application Engineering Department at 716-768-6461 or aecoordinator@unifrax.com.

Data are average results of tests conducted under standard procedures and are subject to variation. Results should not be used for specification purposes.

Refer to the product Material Safety Data Sheet (MSDS) for recommended work practices and other product safety information.

