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## Certificate

Hannover, March 3, 2015

“The Biopersistence of Man-Made Vitreous Fibre (MMVF) Alkaline Earth Silicate Fibre FIBRANgeo in Rats after Intratracheal Instillation” within the following study:

Fraunhofer ITEM study no.: 02G14022

Test substance: FIBRANgeo  
FIBRAN S.A.  
6th klm. Thessaloniki – Oreokastro  
GR-56410 THESSALONIKI

Title: The Biopersistence of Man-Made Vitreous Fibre (MMVFs) FIBRANgeo in Rats after Intratracheal Instillation.

This animal study was conducted in compliance with the Principles of Good Laboratory Practice (German Chemicals Law, §19a Appendix 1, August 28, 2013). The protocol of the European Commission (ECB/TM 27 Rev. 7, 1998) with slight changes according study protocol was followed.

The treatment of rats was performed in October, 2014 by intratracheal instillation of a total dose of 2 mg per rat. The fibre retention data of sacrifice dates up to 3 months after instillation were used for analysis.

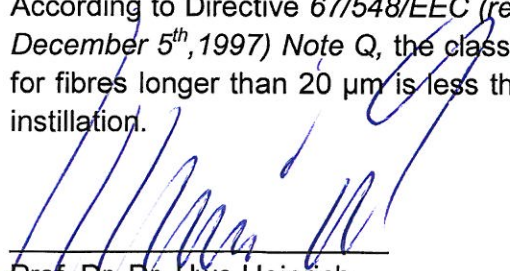
**Following halftimes were calculated by the method according to the protocol of the European Commission:**

**WHO fibre fraction (L>5 µm, D<3µm, L/D>3/1): ≤ 40 days**

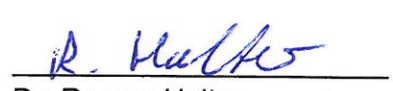
For the Man-Made Vitreous Fibre FIBRANgeo, the half-time of the WHO fibre fraction meets the limit of ≤ 40 days given in Annex II No. 5 of the German Gefahrstoffverordnung (Hazardous Substances Ordinance, 2013) which was set for using MMVF for heat and sound insulation in building construction in Germany.

**Long fibres fraction (length > 20 µm): < 40 days**

According to Directive 67/548/EEC (revised by guideline 97/69/EG of the Commission dated December 5<sup>th</sup>, 1997) Note Q, the classification as a carcinogen need not apply if the halftime for fibres longer than 20 µm is less than 40 days in the biopersistence test by intratracheal instillation.



Prof. Dr. Dr. Uwe Heinrich  
Executive director of Fraunhofer ITEM



Dr. Roman Halter  
Study director