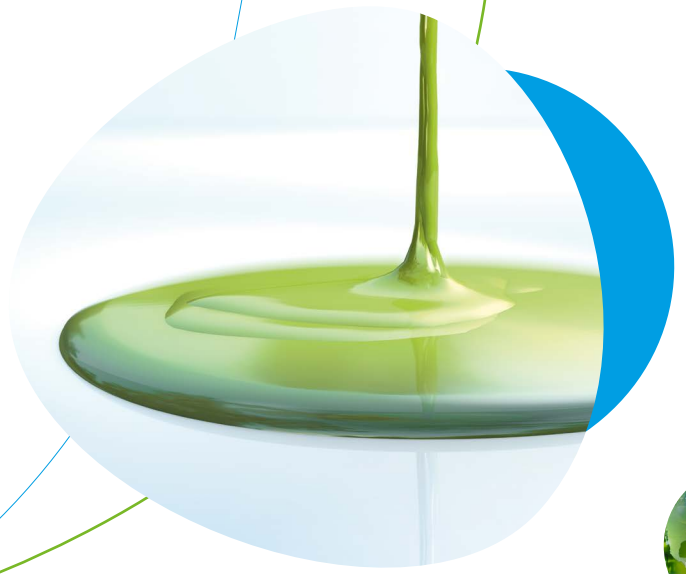
BYK

DEFOAMERS

WAX ADDITIVES

PRODUCT GUIDE

ADDITIVES FROM BIO-BASED MATERIALS



RHEOLOGY ADDITIVES

WETTING AND DISPERSING ADDITIVES

All products in this brochure are PFAS-free.

Introduction

Sustainability, climate neutrality, and similar topics are increasingly coming into focus worldwide. Collective awareness and new regulations, such as the European Green Deal, are demanding change not only in society but also in the chemical industry. The chemical industry is a major contributor to greenhouse gas emissions, but it also offers an important lever to contribute to a more sustainable world. One way to make the chemical industry more sustainable and climate friendly, and less based on finite resources, is the use of bio-based materials. Thanks to its intensive product and application research, BYK offers its customers a comprehensive portfolio of (partly) bio-based additives.

Note

To ensure the best appearance and full functionality, please open in Adobe Acrobat.

Bio-based products

What are bio-based products?

According to the European Commission, bio-based products are "wholly or partly derived from materials of biological origin, excluding materials embedded in geological formations and/or fossilised. [...] As they are derived from renewable raw materials such as plants, bio-based products can help reduce CO_2 [...]."*

BYK's understanding

BYK's understanding is closely related to this definition. BYK takes the definition of "bio-based" given in ASTM D6866 into account as well, so that the bio-based content only refers to the organic carbon.

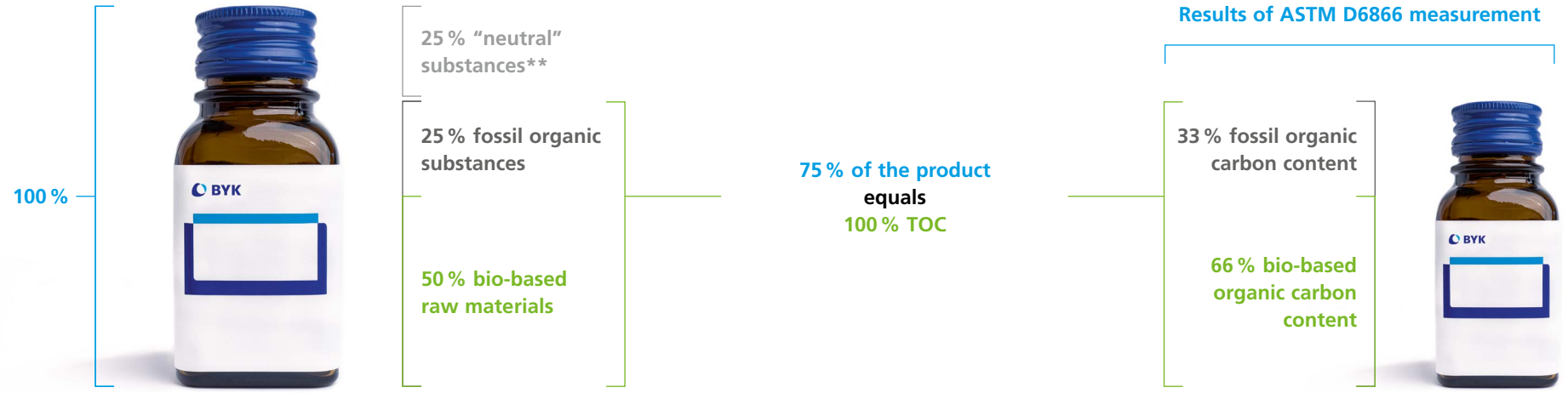
This means that the measurement does not include "neutral" substances that do not contain any carbon, such as water, minerals, and silicon dioxide. Furthermore, substances containing inorganic carbon are likewise excluded. The measured value should therefore be understood as the amount of bio-based organic carbon in relation to the total organic carbon (TOC).

*Reference: Bio-based products | Internal Market, Industry, Entrepreneurship and SMEs (europa.eu)

Measuring method according to ASTM D6866

The bio-based content is determined according to ASTM D6866 using the radiocarbon method. The basis of the radiocarbon method is the decay of ^{14}C isotopes to ^{14}N isotopes. ^{14}C isotopes are formed in the atmosphere and decay at a constant rate to ^{14}N isotopes. Due to the constant exchange with the environment, the ratio of ^{14}C to ^{12}C in living organisms (bio-based materials) almost corresponds to the equilibrium in the surrounding environment. In fossil-derived materials, the decay is considerably more advanced and the ^{14}C isotope concentration considerably lower. The ASTM D6866 "Standard Test Methods for Determining the Bio-based Content of Solid, Liquid, and Gaseous Samples Using Radiocarbon Analysis" defines different ways to measure the ^{14}C content and therefore the bio-renewable content. The method used here is "Method B – Accelerator Mass Spectrometry (AMS)" and done by an independent, accredited testing laboratory. For a better understanding, see G.01.*

Schematic product composition



* The illustration is a very simplified presentation. The statement that 75 % of the product equals 100 % of the TOC is only partially correct, since other elements are excluded.

** e.g. water, carbonates, silicone dioxide, minerals, etc.

G.01

Additives from bio-based raw material

Product	Bio-based organic carbon content (%)
Wetting and dispersing additives	
BYK-MAX D 4220	62
DISPERBYK-108	89
DISPERBYK-2157	91
Surface additives	
BYK-S 760	91
Defoamers/air release additives	
BYK-014	57
BYK-1693 SD	54
BYK-1740	100
BYK-1745	79
BYK-1748	73

Product	Bio-based organic carbon content (%)
Wax additives	
AQUACER 565	94
AQUACER 570	91
AQUACER 571	92
AQUACER 581	87
AQUACER 1541	94
CERAFLOUR 960	96
CERAFLOUR 964	100
CERAFLOUR 993	96
CERAFLOUR 994	96
CERAFLOUR 1000	> 97
CERAFLOUR 1001	> 97
CERAFLOUR 1002	> 97
CERAFLOUR 1003	100
CERAFLOUR 1004	100
CERAFLOUR 1010	100

Product	Bio-based organic carbon content (%)
Processing additives	
BYK-3950 P	100
BYK-MAX P 4102	100
BYK-P 9051	51
BYK-P 9080	86
BYK-P 9085	79
SCONA TPPL 1214 PA	97
SCONA TPPL 1310 PA	94
Viscosity depressants	
VISCOBYK-5120	89
Rheology additives	
GARAMITE-7308	93
OPTIGEL-WX	96
RHEOBYK-7590	100
RHEOBYK-7591	100
RHEOBYK-R 606	81

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