

安鋒實業股份有限公司

台中市南屯區工業區 24 路 29 號 TEL:886-4-23501155 (代表) FAX:886-4-23507373
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含 OH 基蓖麻油聚醇樹脂 ALBODUR 921

規格：

固成份	: 約 100 %
黏度	: 約 600 mPas
生質碳含量(以有機碳總量為基礎)	: 82% (後方有相關檢測報告)
酸價	: ≤ 2 mg KOH/g
OH 含量	: 約 6.62% (供給值)

成膜規格：

94.5% ALBODUR 921 + 5.0% Albolith MS C 350 + 0.5% BYK 088 + Suprasec 2496
架橋率 110%，室溫固化×7 天後測試。

斷裂伸長率	拉伸強度	Shore A 硬度	Shore D 硬度
125 %	16 N/mm ²	97	58

特性：

ALBODUR 921 是一支無溶劑、硬質、非常疏水、含 OH 基的蓖麻油聚醇樹脂
(蓖麻油為可再生的原料)。

應用：

ALBODUR 921 作為一種硬質樹脂，適用高耐化性的塗料，例如：工業
地床和儲槽、管件塗料。可應用在下列領域：

- 工業地床。
- 顏料色漿。
- 儲槽、管件塗料。
- 防銹蝕保護。

成膜規格：

94.5% ALBODUR 921 + 5.0% Albolith MS C 350 + 0.5% BYK 088 + Suprasec 2496 MDI
架橋率 110%，於室溫固化 7 天後進行性能測試。

物性	斷裂伸長率(%)	拉伸強度(N/mm ²)	Shore A 硬度	Shore D 硬度
測試結果	125	16	97	58

適合的原材料：

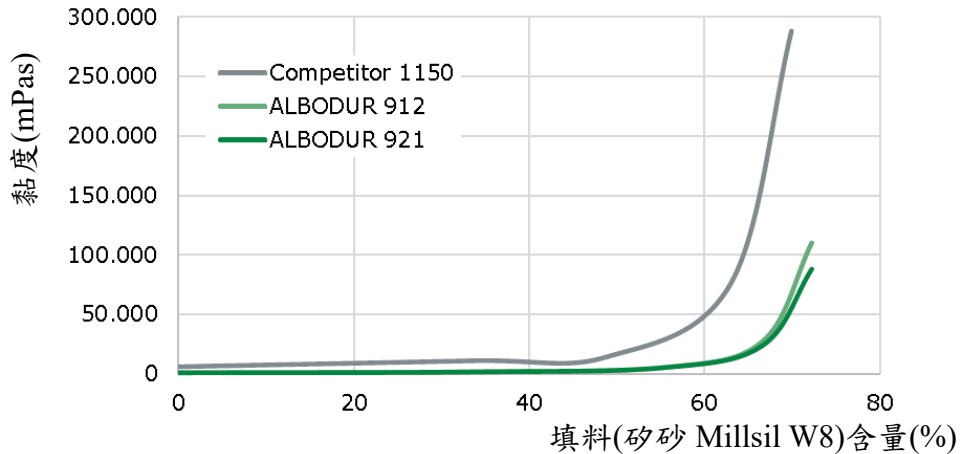
- 消泡劑
EFKA SI 2008 BYK-A 530 BYK 088 Tego Foamex 944
- 流平劑
EFKA FL 3740 BYK 320
- 分散劑
DISPERBYK-111 DISPERBYK-2155 EFKA PU 4063 BYK-P 104 S
- 防沉劑
Sylsia 350 RHEOBYK-7410 ET Albothix 85-32 GARAMITE-7303
- 除水劑
Albolith MS C 350

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多元醇黏度及顏料濕潤性：

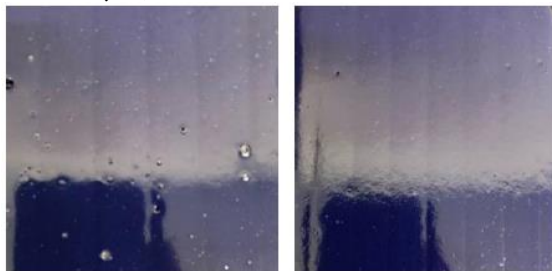
1. ALBODUR 多元醇與市場標準品相比，具有較低黏度和較高疏水性。因此有高顏料/填料負載和成本降低。ALBODUR 921 與競爭品相比，可配製 >20% 的填料、矽砂。也可搭配濕潤、分散助劑來提高負載。高疏水性提供低穩泡、多元醇的剪切稀化表現及自流平性。其硬度和彈塑性發展與競爭品 1150 相似。



2. 比較搭配碳酸鈣的起泡及流平性(20% 多元醇+80% 碳酸鈣，無助劑)：

• 比較起泡及流平性：

左：競爭者 1150 vs 右：ALBODUR 921

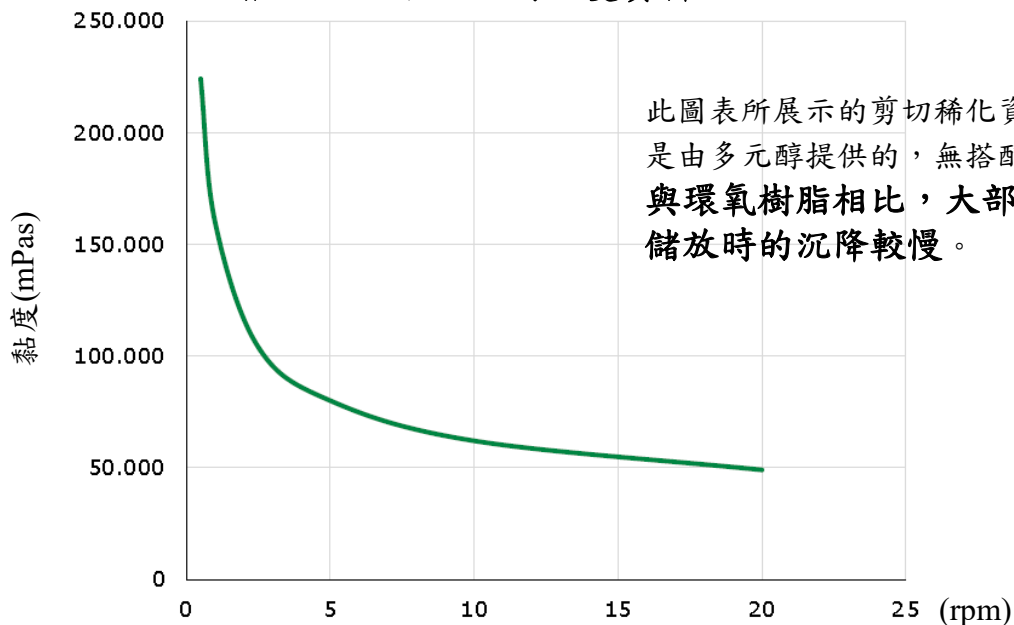


• 比較自流平性：

左：競爭者 1150 vs 右：ALBODUR 921



3. ALBODUR 921 搭配 80% 硫酸鋇的流變資料：



此圖表所展示的剪切稀化資訊，是由多元醇提供的，無搭配任何助劑。與環氧樹脂相比，大部分填料在儲放時的沉降較慢。

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ALBODUR 921 搭配 ALBODUR 110 :

1. 測試配方 :

原材料	比例
ALBODUR / ALBODUR 混併	94.5
除水劑 Albolith MS C 350	5.0
消泡劑 BYK 088	0.5

架橋 : Suprasec 2496 , 110%

固化 : 23°C×28 天 , 相對濕度 50%

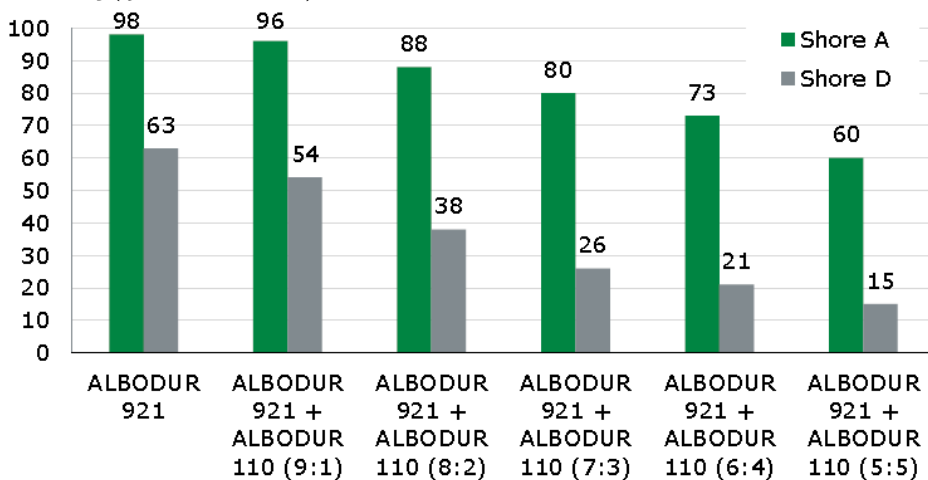
2. 多元醇混併 :

測試組別	1	2	3	4	5	6
ALBODUR 921	100	90	80	70	60	50
ALBODUR 110	-	10	20	30	40	50

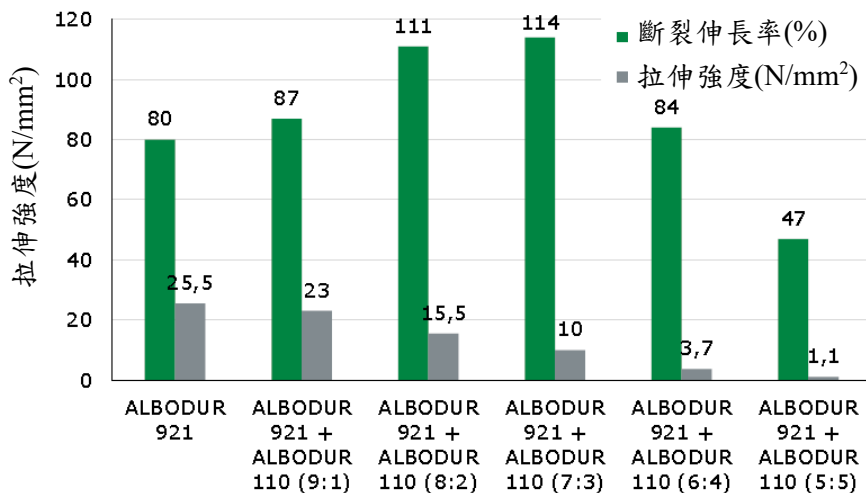
3. 測試結果 :

測試組別	1	2	3	4	5	6
Shore A 硬度	98	96	88	80	73	60
Shore D 硬度	63	54	38	26	21	15
斷裂伸長率(%)	80	87	111	114	84	47
拉伸強度(N/mm²)	25.5	23.0	15.5	10.0	3.7	1.1

4. Shore 硬度(室溫×28 天) :



5. 斷裂伸長率及拉伸強度(室溫×28 天) :



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一般工業地床參考配方 FP 921-04 :

	原材料	比例
1	ALBODUR 921	41.85
2	消泡劑 BYK 088	0.50
3	分散劑 DISPERBYK-2155	1.00
4	分子篩漿液 Albolith MS C 350	6.65
5	填充料 Millsil W6	45.00
6	顏料 Heuccosin G 7610	3.00
7	防沉劑 GARAMITE-7305	2.00
總計		100.00

- 架橋劑：
建議 NCO:OH 架橋率 110%，或每 100 份上述配方中加 25.44 份 SUPRASEC 2496。
- 機械性：
以 SUPRASEC 2496 架橋所做的測試。

物性項目	室溫 x24 小時	50°C x72 小時
斷裂伸長率(%)	55	1%
Shore A 硬度	94	>100
Shore D 硬度	55	75

包裝：

190kg/桶。

儲存：

未開封原裝桶儲放在 5~30°C 的乾燥環境，保質期自生產日起至少 6 個月。

配方及工業製程相關作業建議事項：

1. ALBODUR 配方的準備作業

一般批量的 ALBODUR 配方中含有 1-2 種須在工廠製備。將配方中 ALBODUR 所需的量由 200 公升原裝鐵桶裝入另一乾淨且乾燥的容器內。配方中其它成份須在攪拌下加入(例如可使用 dissolver)，再混合入製劑中。**如果分子篩漿液(ALBOLITH MS C 350)未使用整桶(120 公升/桶)，請先將欲使用的量在使用前攪拌完全，因為 MS C 350 可能會有沉澱的狀況。待混合 ALBODUR 配方約半小時達混合完全後，將配方液轉儲放至容器內，配方液須靜置至少 24 小時才可進行後續作業。**

*僅可使用已除濕氣的填料和顏料。

*請使用真空攪拌器來達到最佳的性能。

2. 基材表面準備作業：

(1) 基材表面必須是乾淨、乾燥、無粉塵、無油脂的，須移除所有鬆散、脫落的材料，建議使用機械清理器具來處理。

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(2)須隨時檢測殘餘濕氣含量，基材深度 2 公分內濕氣應小於 3%，建議使用 C-aqua meter 來檢測。

(3)基材溫度須控制在比露點高 3°C 的溫度。(相關露點資訊請參考下頁第 8 點)

3.打底作業(primer)：

強烈建議要進行打底的步驟，如此才能防止鹼性物質及水氣的滲入，以提供後續塗佈有良好的密著性，且建議要打兩次底。下列是建議的底塗配方：

(1)1K-PU，例如: SUPRASEC 2060(70%溶液於 Solvesso 100)或 SUPRASEC 2416(100%無溶劑型)

(2)2K-PU，例如:ALBODUR 912 以 1:1 比例與 SUPRASEC 9584 混合、架橋(x 來做為底塗。

為了達到最佳密著，建議當底塗仍然潮濕時，可將加熱乾燥的石英砂撒在上面。

4.ALBODUR 混合液的製備作業：

在 400rpm 機械攪拌下，緩慢添加所需的硬化劑量至 ALBODUR 配方液中，然後攪拌至配方液達到完全均質。為避免混合液有不均勻的狀況發生，建議將產品移至另一乾淨、乾燥的容器內。

5.ALBODUR 混合液與面塗(例如:AC 27401)的搭配應用：

(1)溫度 20°C 下，25-30kg 量(適合塗佈面積約 10-15m²)的 ALBODUR 混合液的可使用期(pot-life)約 45-60 分鐘。ALBODUR 混合液建議使用抹刀或鋸齒抹刀以最小厚度 1.5mm(塗膜厚,相當於約 2.3kg/m²)來塗佈。

(2)以 ALBODUR 為塗佈底的自流平地床須用有脫氣的釘滾輪(spike roller)來塗佈，為了視覺美觀，15 分鐘後可將 PVC 色片鋪撒在表面。

(3)為了達到不易滑跤的要求，建議在應用 ALBODUR 混合液 15 分鐘後將小石子砂鋪灑在表面，完全硬化後須以刷子將過多的小石子砂清除掉。

(4)為了表面的密封性，建議使用以 AC 27401 為主劑的水性 2K 系統面塗(塗膜厚約 150g/m²，可參考配方 FP 27401-04)。AC 27401 面塗需在應用 ALBODUR 的 12-24 小時後才可應用，完全固化需時 7 天。

6.器具的清理作業：

攪拌器及其他器具可用乙酸丁酯(BAC)或乙酸乙酯(EAC)來清洗乾淨。

7.安全性操作建議

須避免接觸皮膚和眼睛，建議在操作時配戴適當的防護手套、護目鏡及遵守一般化學品安全操作事項。

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8.空氣相對溼度-露點關係資料表

濕度 氣溫 (°C) (%)	45	50	55	60	65	70	75	80	85	90	95
2	-7.77	-6.56	-5.43	-4.4	-3.16	-2.48	-1.77	-0.98	-0.26	0.47	1.2
6	-4.49	-3.07	-2.1	-1.05	-0.08	0.85	1.86	2.72	3.62	4.48	5.38
10	-1.26	0.02	1.31	2.53	3.74	4.79	5.82	6.79	7.65	8.45	9.31
14	2.2	3.76	5.1	6.4	7.58	8.67	9.7	10.71	11.64	12.55	13.36
18	5.9	7.43	8.83	10.12	11.33	12.44	13.48	14.56	15.41	16.31	17.25
20	7.73	9.3	10.72	12	13.22	14.4	15.48	16.46	17.44	18.36	19.18
22	9.54	11.16	12.52	13.89	15.19	16.27	17.41	18.42	19.39	20.28	21.22
24	11.34	12.93	14.44	15.73	17.06	18.21	19.22	20.33	21.37	22.32	23.18
26	13.15	14.84	16.26	17.67	18.9	20.09	21.29	22.32	23.32	24.31	25.16
28	14.96	16.61	18.14	19.38	20.86	22.07	23.18	24.28	25.25	26.2	27.18
30	16.79	18.44	19.96	21.44	23.71	23.94	25.11	26.1	27.21	28.19	29.09
34	20.42	22.19	23.77	25.19	26.54	27.85	28.94	30.09	31.19	32.13	33.11
38	23.97	25.74	27.44	28.87	30.31	32.62	32.78	33.96	35.01	36.05	37.03
40	25.79	27.66	29.22	30.81	32.16	33.48	34.69	35.86	36.98	38.05	39.11
45	30.29	32.17	33.86	35.38	36.85	38.24	39.54	40.74	41.87	42.97	44.03

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ISO/IEC 17025:2017-Accredited Testing Laboratory

November 16, 2022

Markus Dimmers
ALBERDINGK BOLEY GmbH
Duesselderstr. 53
Krefeld
47829
Germany

Dear Mr. Dimmers

Please find enclosed your radiocarbon (C14) report for the material recently submitted. The result is reported as "% Biobased Carbon". This indicates the percentage carbon from "natural" (plant or animal by-product) sources versus "synthetic" (petrochemical) sources. For reference, 100 % Biobased Carbon indicates that a material is entirely sourced from plants or animal by-products and 0 % Biobased Carbon indicates that a material did not contain any carbon from plants or animal by-products. A value in between represents a mixture of natural and fossil sources.

The analytical measurement is cited as "percent modern carbon (pMC)". This is the percentage of C14 measured in the sample relative to a modern reference standard (NIST 4990C). The % Biobased Carbon content is calculated from pMC by applying a small adjustment factor for C14 in carbon dioxide in air today. It is important to note is that all internationally recognized standards using C14 assume that the plant or biomass feedstocks were obtained from natural environments.

Reported results are accredited to ISO/IEC 17025:2017 Testing Accreditation PJLA #59423 standards and all chemistry was performed here in our laboratory and counted in our own accelerators in Miami, Florida.

The international standard method utilized for this analysis is cited under Summary of Results. The standard version used is the latest available as of the date reported (unless otherwise noted). The report also indicates if the result is relative to total carbon (TC) or only total organic carbon (TOC). When interpreting the results, please consider any communications you may have had with us regarding the analysis. If you have any questions please contact us. We welcome your inquiries.

Sincerely,

A digital signature of Chris Patrick, showing the name in a cursive script and the text "Digital signature on file" below it.

Chris Patrick
Vice President of Laboratory Operations



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Summary of Results - % Biobased Carbon Content
ASTM D6866-22 Method B (AMS) TOC

Certificate Number: 534846645552134514

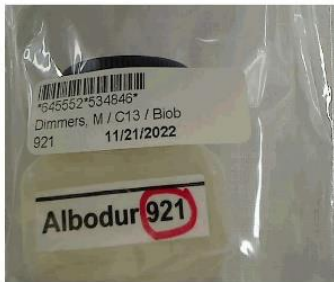
Validation:

Chris Retack
Digital Signature on file

Submitter	Markus Dimmers
Company	ALBERDINGK BOLEY GmbH
Date Received	November 09, 2022
Date Reported	November 16, 2022
Submitter Label	Albodur 921

RESULT: 82 % Biobased Carbon Content (as a fraction of total organic carbon)

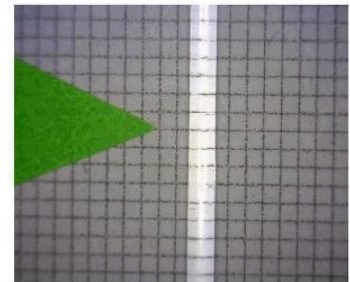
Laboratory Number	Beta-645552
Percent modern carbon (pMC)	82.37 +/- 0.26 pMC
Atmospheric adjustment factor (REF)	100.0; = pMC/1.000



Package received - labeling COC



View of content (1mm x 1mm scale)



Representative sample analyzed (1mm x 1mm scale)

Disclosures: All work was done at Beta Analytic in its own chemistry lab and AMSs. No subcontractors were used. Beta's chemistry laboratory and AMS do not react or measure artificial C 14 used in biomedical and environmental AMS studies. Beta is a C14 tracer-free facility. Validating quality assurance is verified with a Quality Assurance report posted separately to the web library containing the PDF downloadable copy of this report.

Precision on the RESULT is cited as +/- 3% (absolute). The cited precision on the analytical measure (pMC) is 1 sigma (1 relative standard deviation). The reported result only applies to the analyzed material. The accuracy of the RESULT relies on the measured carbon in the analyzed material having been in recent equilibrium with CO₂ in the air and/or from fossil carbon (more than 40,000 years old) such as petroleum or coal. The RESULT only applies to relative carbon content, not to relative mass content. The RESULT is calculated by adjusting pMC by the applicable "Atmospheric adjustment factor (REF)" cited in this report

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Summary of Results - % Biobased Carbon Content
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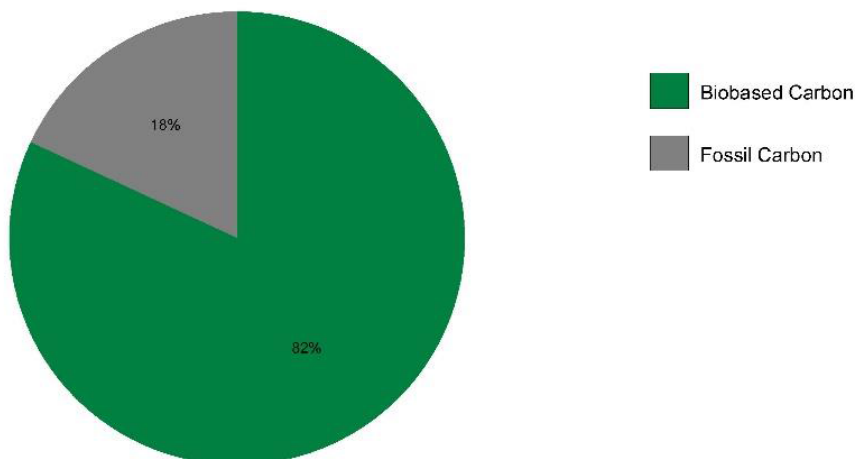
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Atmospheric adjustment factor (REF)	100.0; = pMC/1.000



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Summary of Results - % Biobased Carbon Content
ASTM D6866-22 Method B (AMS) TOC

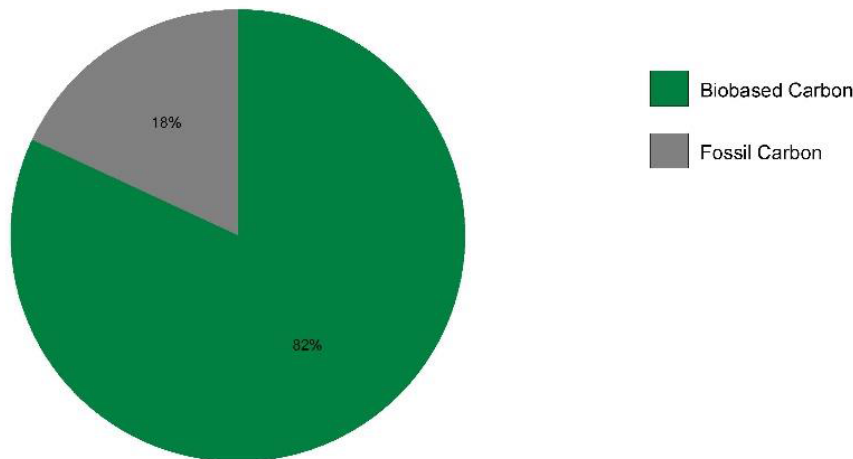
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ISO/IEC 17025:2017-Accredited Testing Laboratory

Quality Assurance Report

This report provides the results of reference materials used to validate radiocarbon analyses prior to reporting. Known-value reference materials were analyzed quasi-simultaneously with the unknowns. Results are reported as expected values vs measured values. Reported values are calculated relative to NISTSRM-1990C and corrected for isotopic fractionation. Results are reported using the direct analytical measure percent modern carbon (pMC) with one relative standard deviation. Agreement between expected and measured values is taken as being within 2 sigma agreement (error x 2) to account for total laboratory error.

Report Date: November 21, 2022
Submitter: Mr. Markus Dimmers

QA MEASUREMENTS

Reference 1

Expected Value: 96.69 +/- 0.50 pMC

Measured Value: 97.62 +/- 0.30 pMC

Agreement: Accepted

Reference 2

Expected Value: 0.44 +/- 0.04 pMC

Measured Value: 0.44 +/- 0.04 pMC

Agreement: Accepted

Reference 3

Expected Value: 129.41 +/- 0.06 pMC

Measured Value: 129.41 +/- 0.37 pMC

Agreement: Accepted

COMMENT: All measurements passed acceptance tests.

Validation:

Chris Patrick
Digital signature on file

Date: November 21, 2022

注意：此為一指導性資料，並不具有約束力，我們建議使用者能在使用之前做有必要的測試，不要把它當做一種直接的替代品，如此才能確保產品適合於指定的應用。

大陸手機:1350-9624401, 1382-5211745

第11頁，共11頁 (第五版 2024.05)