EMMERICH RESEARCH CENTER

Data Sheet

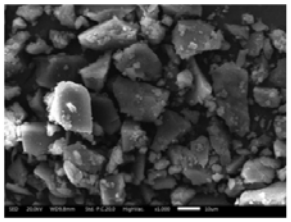
Melanin

(Black Soldier Fly)

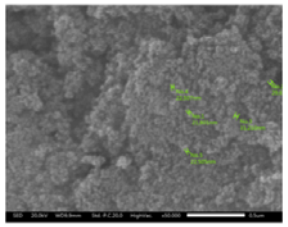
No.	Parameter	Result			
		Mesoscopic	Unit	Nanoscopic	Unit
1	Appearance	Dark Brown	NA	Black	NA
2	Particle Size	< 100	um	< 200	nm
3	Antioxidant Activity (Radical Scavenging Activity)	TBC	NA	IC50 at 125*	ppm
4	Relative Purity**	8.5 (line width)	gauss	5.2 (line width)	gauss
5	Sun Protection Factor	TBC	NA	SPF 2 at 50 SPF 16 at 200 SPF 40 at 500	ppm
6	UVB Absorption	TBC	NA	50% at 50 93% at 200 96% at 500	ppm
5	Solubility	Alkali conditions (pH 9-14)	NA	Alkali conditions (pH 9-14)	NA
				Neutral to alkali (pH 6-14)	NA

1.	Company	:	Hermetia Bio Science
2.	Project No.	:	18013
3.	Document No.	:	SPEC 18013-P3-G-0000-DS-MN001A_A
4.	Laboratory	:	Emmerich Research Centre
5.	Reference No.	:	BRIN_SEM_48196; EMRC #11-06.0
6.	Sample Number	:	
7.	Sample Name	:	Mesoscopic Melanin;
			Nanoscopic Melanin
8.	Date Received	:	13 February 2024
9.	Date of Analysis	:	13 January 2024
10.	Type of Analysis	:	See Above

MESOSCOPIC MELANIN



NANOSCOPIC MELANIN



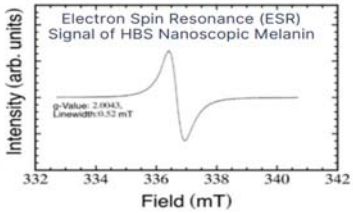
Comments:

1 Storage conditions below 25°C, dry and sealed tight.

2 *IC50 = melanin concentration needed to inhibit oxidative response by 50%.

3 **Relative Purity of Melanin

**RELATIVE PURITY OF MELANIN



Melanin source	ESR Line width (gauss)
HBS Nanoscopic Melanin	5.2
Reference #1	5.6
Reference #2	6.2

The lower number of ESR linewidth indicates higher purity of melanin.

Rev No.	Date	Revision Description	Prepared by	Lab.	ERC	OBU	HBS
A	16-Feb-24	Issued for Information	DM	ESC	ES	DA	EA