

XIAN Plant Bio-engineering Co.,Ltd

Certificate of Analysis

Product Name: Milk Thistle Seed Extract (Silymarin 80% by UV, 50% by HPLC)

Batch No.: SM210501E

Country of Origin: P. R. China

Botanical Source: *Silybum marianum* (L.) Gaertn

Plant Parts: Seeds

Manufacture Date: May 08, 2021

Expired Date: May 07, 2024

Non-Irradiated/Non-ETO/Treat by Heat Only

Solvents: Ethanol and Hexane

Analysis Item	Specification	Result	Method
Silymarin	≥ 80.0%	81.44%	UV-Vis
	≥ 50.0%	51.31%	HPLC
Silybin A.B.	≥ 30.0%	33.31%	HPLC
Isosilybin A.B.	≥ 5.0%	5.57%	HPLC
Silydianin & silychristin	≥ 9.0%	12.43%	HPLC
Appearance	Yellowish-brown powder	Complies	Visual
Odor	Characteristic	Complies	Organoleptic
Identification	Positive	Complies	TLC
Powder Size	≥ 95% through 80 mesh	Complies	USP #80 Sieve
Bulk Density	0.30 – 0.60 g/mL	0.44 g/mL	USP42-NF37<616>
Loss on Drying	≤ 5.0%	1.94%	USP42-NF37<731>
Residue on Ignition	≤ 0.5%	0.20%	USP42-NF37<281>
Residual Ethanol	≤ 5,000 µg/g	3.8x10 ³ µg/g	USP42-NF37<467>
Residual Hexane	≤ 290 µg/g	12 µg/g	USP42-NF37<467>
Pesticide Residues	USP<561>	Complies	USP42-NF37<561>
Total Heavy Metals	≤ 10 µg/g	Complies	USP42-NF37<231>
Arsenic (As)	≤ 1.0 µg/g	ND (< 0.1 µg/g)	ICP-MS
Cadmium (Cd)	≤ 0.5 µg/g	ND (< 0.01 µg/g)	ICP-MS
Lead (Pb)	≤ 1.0 µg/g	ND (< 0.1 µg/g)	ICP-MS
Mercury (Hg)	≤ 0.5 µg/g	ND (< 0.01 µg/g)	ICP-MS
Total Plate Count	≤ 1,000 cfu/g	5 cfu/g	USP42-NF37<2021>
Molds and Yeasts	≤ 100 cfu/g	< 10 cfu/g	USP42-NF37<2021>
<i>Salmonella</i>	Absence/10g	Complies	USP42-NF37<2022>
<i>E. Coli</i>	Absence/10g	Complies	USP42-NF37<2022>
<i>Staphylococcus aureus</i>	Absence/10g	Complies	USP42-NF37<2022>
Aflatoxins	≤ 20µg/kg	ND(< 0.5 µg/kg)	USP42-NF37<561>

Packing: 25 kg/drum, packing in paper-drums and two sealed plastic-bags inside.

Storage: Store in a well-closed container away from moisture, direct light and heat.

Expired date: Re-test after three years from the manufacturing date.

Conclusion: Conform to Specification.