



KEEP INGREDIENTS CO. LTD

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TECHNICAL DATA SHEET

Saffron Extract 3.5% Safranal

1. PRODUCT DESCRIPTION

Saffron Extract is a botanical extract derived from *Crocus sativus* L. (saffron), extracted from the stigma (saffron threads) using water and ethanol. The extract is standardized to a minimum of 3.5% safranal and 3.5% crocin (determined by HPLC or UV as specified). It is available in two assay versions: Saffron Extract 3.5% Safranal (HPLC) and Saffron Extract 3.5% Safranal (UV). The product is an orange-yellow fine powder with a characteristic odour and taste, and is packed for storage in a well-closed container away from moisture, light and oxygen.

2. PRODUCT INFORMATION

Item	Information
Product name	Saffron Extract 3.5% Safranal
Botanical source	<i>Crocus sativus</i> L. (Saffron)
Part used	Stigma
Solvents used	Water & ethanol
Country of origin	China
Active indicators	Safranal $\geq 3.5\%$; Crocin $\geq 3.5\%$
Available assay versions	3.5% Safranal (HPLC); 3.5% Safranal (UV)
Appearance	Orange-yellow fine powder; characteristic odour and taste
Supplier	KEEP INGREDIENTS CO. LTD, Xi'an, Shaanxi, China
Shelf life	36 months
Packing	Paper drum with two plastic bags inside; net weight 25 kg; dimensions I.D. 35 × H51 cm
Storage	In a well-closed container, away from moisture, light and oxygen

3. PRODUCT SPECIFICATION

Table 1 — Product specification (both HPLC and UV versions)

Item	Specification	Test method
Colour	Orange yellow	Organoleptic
Odour & taste	Characteristic	Organoleptic
Appearance	Fine powder	Organoleptic
Identification	Identical to R.S. sample	HPTLC
Safranal	$\geq 3.5\%$	HPLC / UV
Crocin	$\geq 3.5\%$	HPLC / UV



Item	Specification	Test method
Sieve analysis	100% through 80 mesh	Eur. Ph. <2.9.12>
Loss on drying	≤ 5.0%	Eur. Ph. <2.8.17>
Total ash	≤ 5.0%	Eur. Ph. <2.4.16>
Bulk density	40–60 g/100 mL	Eur. Ph. <2.9.34>
Tap density	60–90 g/100 mL	Eur. Ph. <2.9.34>
Lead (Pb)	≤ 3.0 mg/kg	ICP-MS (Eur. Ph. <2.2.58>)
Arsenic (As)	≤ 2.0 mg/kg	ICP-MS (Eur. Ph. <2.2.58>)
Cadmium (Cd)	≤ 1.0 mg/kg	ICP-MS (Eur. Ph. <2.2.58>)
Mercury (Hg)	≤ 0.1 mg/kg	ICP-MS (Eur. Ph. <2.2.58>)
Solvents residue	Meets Eur. Ph. <2.4.24>	—
Pesticides residue	Meets Eur. Ph. <2.8.13>	—
Total plate count	≤ 10,000 cfu/g	Eur. Ph. <2.6.12>
Yeast & mould	≤ 1,000 cfu/g	Eur. Ph. <2.6.12>
E. coli	Negative / g	Eur. Ph. <2.6.13>
Salmonella	Negative / 25 g	Eur. Ph. <2.6.13>
Non-irradiation	≤ 700	EN <13751>

4. CERTIFICATE OF ANALYSIS

Two batches are covered, corresponding to the HPLC and UV assay versions.

Certificate of Analysis — Saffron Extract 3.5% Safranal (HPLC), Batch KYSE2026091001

Field	Detail
Batch No.	KYSE2026091001
Manufacture date	20260910
Expiry date	20290909
Part used	Stigma
Botanical source	Crocus sativus L.
Solvents used	Water & ethanol
Country of origin	China
Quality assurance	Bai wei xin; Analyst: Liu qiao qiao



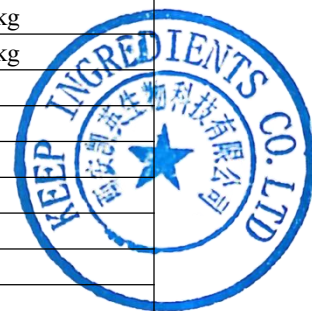
Item	Specification	Result
Colour	Orange yellow	Conform
Odour & taste	Characteristic	Conform
Appearance	Fine powder	Conform
Identification	Identical to R.S. sample (HPTLC)	Identical
Safranal	≥ 3.5% (HPLC)	3.41%
Crocin	≥ 3.5% (HPLC)	3.75%
Sieve analysis	100% through 80 mesh	Conform
Loss on drying	≤ 5.0%	3.43%
Total ash	≤ 5.0%	1.65%
Bulk density	40–60 g/100 mL	55 g/100 mL
Tap density	60–90 g/100 mL	84 g/100 mL
Lead (Pb)	≤ 3.0 mg/kg	0.0100 mg/kg
Arsenic (As)	≤ 2.0 mg/kg	0.0185 mg/kg
Cadmium (Cd)	≤ 1.0 mg/kg	< 0.01 mg/kg
Mercury (Hg)	≤ 0.1 mg/kg	< 0.01 mg/kg
Solvents residue	Meets Eur. Ph. <2.4.24>	Conform
Pesticides residue	Meets Eur. Ph. <2.8.13>	Conform

Item	Specification	Result
Total plate count	≤ 10,000 cfu/g	170 cfu/g
Yeast & mould	≤ 1,000 cfu/g	10 cfu/g
E. coli	Negative / g	Conform
Salmonella	Negative / 25 g	Conform
Non-irradiation	≤ 700	515

Certificate of Analysis — Saffron Extract 3.5% Safranal (UV), Batch KYSE2026081801

Field	Detail
Batch No.	KYSE2026081801
Manufacture date	20260818
Expiry date	20290817
Part used	Stigma
Botanical source	Crocus sativus L.
Solvents used	Water & ethanol
Country of origin	China
Quality assurance	Bai wei xin; Analyst: Liu qiao qiao

Item	Specification	Result
Colour	Orange yellow	Conform
Odour & taste	Characteristic	Conform
Appearance	Fine powder	Conform
Identification	Identical to R.S. sample (HPTLC)	Identical
Safranal	≥ 3.5% (UV)	3.71%
Crocin	≥ 3.5% (UV)	4.75%
Sieve analysis	100% through 80 mesh	Conform
Loss on drying	≤ 5.0%	3.13%
Total ash	≤ 5.0%	0.65%
Bulk density	40–60 g/100 mL	51 g/100 mL
Tap density	60–90 g/100 mL	74 g/100 mL
Lead (Pb)	≤ 3.0 mg/kg	0.0105 mg/kg
Arsenic (As)	≤ 2.0 mg/kg	0.0285 mg/kg
Cadmium (Cd)	≤ 1.0 mg/kg	< 0.01 mg/kg
Mercury (Hg)	≤ 0.1 mg/kg	< 0.01 mg/kg
Solvents residue	Meets Eur. Ph. <2.4.24>	Conform
Pesticides residue	Meets Eur. Ph. <2.8.13>	Conform
Total plate count	≤ 10,000 cfu/g	270 cfu/g
Yeast & mould	≤ 1,000 cfu/g	10 cfu/g
E. coli	Negative / g	Conform
Salmonella	Negative / 25 g	Conform
Non-irradiation	≤ 700	505



Microbiological tests performed in accordance with Eur. Ph. methods; heavy metals by ICP-MS. Non-irradiation by EN 13751.

5. ANALYTICAL METHOD (HPLC for Crocin / Crocetin)

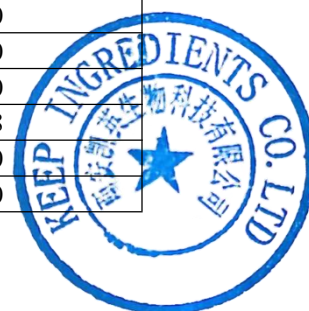
Substance	Formula	CAS No.	Purity
Crocin	C ₄₄ H ₆₄ O ₂₄	42553-65-1	≥ 90.0%
Crocetin	C ₂₀ H ₂₄ O ₄	27876-94-4	≥ 90.0%

Table 3 — HPLC conditions

Parameter	Condition
Column	C18 column, 250 mm × 4.6 mm, 5 µm (or equivalent)
Mobile phase	A: acetic acid-ammonium acetate buffer; B: acetonitrile (gradient elution, see Table 4)
Injection volume	10 µL
Flow rate	1.0 mL/min
Detection wavelength	440 nm

Table 4 — Gradient elution programme

Time (min)	Flow rate (mL/min)	Mobile phase A (%)	Mobile phase B (%)
0	1.0	80	20
1	1.0	80	20
8	1.0	40	60
8.1	1.0	30	70
13	1.0	2	98
15	1.0	80	20
20	1.0	80	20



6. STATEMENTS AND COMPLIANCE

Non-irradiation. The product is not irradiated, with a non-irradiation value of 515 (HPLC batch) and 505 (UV batch), both below the limit of 700, determined by EN 13751.

Solvents residue. The product meets the requirements of Eur. Ph. <2.4.24> for residual solvents.

Pesticides residue. The product meets the requirements of Eur. Ph. <2.8.13> for pesticide residues.

Heavy metals. The product complies with the limits for lead (≤ 3.0 mg/kg), arsenic (≤ 2.0 mg/kg), cadmium (≤ 1.0 mg/kg) and mercury (≤ 0.1 mg/kg), determined by ICP-MS (Eur. Ph. <2.2.58>).

Microbiological. The product meets the microbiological limits (aerobic plate count $\leq 10,000$ cfu/g, yeast & mould $\leq 1,000$ cfu/g, E. coli negative, Salmonella negative).

Statements above are transcribed from the supplied Certificates of Analysis.

7. STORAGE AND TRANSPORTATION

- Stored in a well-closed container, away from moisture, light and oxygen.
- Shelf life: 36 months under the above conditions and in its original packaging.
- Packing: paper drum with two plastic bags inside; net weight 25 kg; dimensions I.D. 35 × H51 cm.