

**DISTRIBUTION CONTROL**

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Position: R. Quality, Environment and Food Security Date: 16/03/20

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Rev.	Fecha	MODIFICATIONS RECORD
0	11-09-09	initial release
1	15-12-09	Modification
2	07-01-10	Property identification
3	23-12-10	Modifying the food safety team
4	11-02-12	ISO3632 Update
9	12-09-17	Modification after audit
10	09-01-23	Updated Registration Details

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**CONTROL DE EDICIÓN**

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## 1.SAFFRON: PRODUCT TECHNICAL SPECIFICATIONS

**Reference:** Saffron Filaments

**Customs HTS Code:** 0910201000

**Botanic Name:** *Crocus Sativus*

**Ingredients:** Saffron 100% Pure, composed by three carotenoids crocine (colouring agent), picrocrocine (flavour responsible) and Safranal (aroma responsible).

**Part of the plant used:** stigmas toasted & dried to less than 12 % moisture content.

**Production:** saffron flowers are sterile so they must be propagated by planting bulbs which last producing for 4-5 years. Saffron flowers bloom on October-November every year so they must be hand-picked early in the morning and then placed in baskets.

Then the stigmas are separated and toasted at warm temperature. Once you have saffron filaments they must be ground on smerile miller to get the desired particle size if saffron powder is the product requested. At Triselecta, the operation is performed at low temperature and oxygen content resulting on better values of crocine, picocrocine and safranal.

**Category:** The world ISO/TS3632:2003 saffron standard classifies it into three different categories by measuring the content of Crocine, Picocrocine and Safranal through Spectrophotometry to measure the absorbancy of the product at different wavelengths. Find attached a detail of them:

- **Crocine**, it is the colouring agent of the saffron. ISO standard limits three categories by its content at 440 nm spectrophotometry.
- **Safranal**, it is the aroma agent for saffron. ISO standard limits three categories by its content at 330 nm spectrophotometry.
- **Picrocrocine**, it is the responsible of the typical sour flavour of saffron. ISO standard limits three categories by its content at 257 nm spectrophotometry

Category	Cat 1 ISO3632:2003	Cat 2 ISO3632:2003	Cat 3 ISO3632:2003
Crocine Content	➤ 200	< 200 - > 170	➤ 120
Picrocrocine Content	➤ 70	➤ 55	➤ 40
Safranal Content	20-50	20-50	20-50

**Organoleptic Description:** Sour flavour, typical of saffron and powerful aroma

**Aspect:** Red fibres corresponding to dried stigmas

**Packaging:** plastic containers, glass jars, cans, plastic capsules, blisters.

**Solubility:** soluble in water when ground, turns it yellow colour

**Expiry Date:** 4 years from packing date

**Net Weight:** depending on packaging

**Lot Number:** Format YY/\_\_\_\_ (four numbers equivalent to production number)

**Conservation:** keep at room temperature on a dry place

**Processing:** according with world ISO3632 standard

**Transport:** lorry, sea container or airfreight

**Country of production:** Non EU Agriculture (Iran) & EU Agriculture (Greece, Spain).

**Net Weight:** 0.5g, 0.75 g, 1g, 2g, 4g, 8g, 10g up to 1 kg packs

**Conservation:** keep at room temperature on a dry place

**Mode of use:** grind it with your hands and place it on a glass of hot water to infuse it. Finally, add it to your food preparation at the end of cooking. It is widely used on rice (risotto, paella) soups, fishes, meats, desserts.

**Health:** natural product free of any artificial ingredients, used since ancient times to remove strong pains, increases appetite and several scientific studies have demonstrated anti tumoral effects on saffron.

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## **2. SAFFRON: FILAMENTS & GROUND.** **MICROBIOLOGICAL TESTS**

Analysis carried periodically according ISO3632 standards.

No.	Test	Acceptable Range	Method
1	<b>Total Viable Count</b>	<b>Max 500,000 cfu/g</b>	<b>ISO4833</b>
2	<b><i>E. Coli</i></b>	<b>&lt; 10 per g</b>	<b>ISO6579</b>
3	<b><i>Salmonella</i></b>	<b>Negative in 25 g</b>	<b>ISO7251</b>
4	<b>Mould</b>	<b>Max : 1000 cfu/g</b>	<b>ISO7954</b>
5	<b>Yeast</b>	<b>Max: 1000 cfu/g</b>	<b>ISO7954</b>
6	<b>Coliform Bacteria</b>	<b>Max: 5000 cfu/g</b>	<b>ISO4832</b>
7	<b><i>Listeria monocytogenes</i></b>	<b>Negative in 25 g</b>	<b>ISO11290-2</b>
8	<b>Sulfite Reducing Clostridia</b>	<b>Max 500 cfu/g</b>	<b>ISO15213</b>
9	<b><i>Staphylococcus Aureus</i></b>	<b>Max 100 cfu/g</b>	<b>ISO6888</b>

Ref. Standards :

1. Microbiology-General Guidance on Methods for the detection of *Salmonella*. ISO 6579:1993.
2. Microbiology-General Guidance for enumeration of presumptive *E. Coli*. Most probable number technique. ISO 7251:1993.
3. Microbiology-General Guidance for enumeration of yeasts and **moulds** colony count technique at 25°C. ISO 7954:1987.
4. Determination and enumeration of **moulds** and yeasts colony count technique at 25°C. ISO 997:1995.

## **3. SAFFRON ALLERGENS**

Specie Name	Allergen Name	Biochemical id	Mw	C:cDna P:Peptide Sequence	Reference
Crocus Sativus	Cros 1		21		Varasteh A-R p.c
Crocus Sativus	Cros 2	Profilin	14	C	AY898658

\* International Union of Immunological Societies. Allergen Nomenclature Subcommittee [www.allergen.org](http://www.allergen.org)

## **4. GMO**

Not applicable coming from a non GMO organism.

## 5. IRRADIATION

The product mentioned on this specification has not been subjected to any kind of irradiation

## 6. PHYSICAL-CHEMICAL COMPOSITION

Saffron comes from the dried stigmas of the *Crocus Sativus* flower, a species of the *Crocus* in the family Iridiaceae. It is a sterile triploid plant so for its propagation healthy bulbs need to be planted to have production for 4-5 years. Then they need to be replaced again for new ones.

The blooming of the saffron flowers take place between end of October and beginning of November when the fields are completely in purple colour. The flowers are just opened for 1-2 days so they need to be picked by hand soon in the morning to avoid high temperatures. Then the stigmas of the flower are carefully removed and slightly dried so they get deeper red colour and aroma. The final product is just 1/5 of the original once dried.

It is necessary to pick around 175000 flowers of saffron to get one kilogram of finished product having a production around 4 to 6 kilogram of saffron per hectare.

Saffron is mainly composed by three carotenoids that are synthesized during the growing period of the flower lasting for about three months. They give saffron its typical flavour, colour and aroma.

## 7. SAFFRON NUTRITIONAL FACTS

Nutrition Information Saffron per 100 grs	
<b>ENERGY</b>	
Calories	310.246 kcal
Calories	1298 kj
Carbohydrates	65.37 g
Calories from Carbohydrates	254.943 kcal
% Calories from Carbohydrates	82.17 %
<b>FAT CONTENT</b>	
Fat	5.85 g
Calories from Fat	51.48 kcal
% Calories from Fat	16.59 %
Monounsaturated Fat	0.429 g
Polyunsaturated Fat	2.067 g
Saturated Fat	0.006 g
FA 14:0 Myristic	0.006 g
FA 16:0 Palmitic	1,157 g

FA 16:1 Palmitoleic	0,003 g
FA 18:0 Stearic	0,247 g
FA 18:1 Oleic	0,39 g
FA 18:2 Linoleic	0,754 g
FA 18:3 Linolenic	1,242 g
FA 20:1 Gadoleic	0,006 g
FA 20:4 Arachidonic	0,013 g
FA 22:5 Clupanodonic	0,06 g
<b>PROTEINS CONTENT</b>	
Protein	11.432 g
Calories from Protein	46.871 kcal
% Calories from Protein	15.11 %
Total Dietary Fiber	3.9 g
Ash	5.448 g
<b>MINERALS</b>	
Calcium, Ca	110.9 mg
Copper, Cu	0.328 mg
Folate	93 mcg
Iron, Fe	11.1 mg
Magnesium, Mg	264 mg
Manganese, Mn	28.408 mg
Niacin	1.46 mg
Phosphorus, P	252.1 mg
Potassium, K	1724 mg
Riboflavin	0.267 mg
Selenium, Se	5.6 mcg
Sodium, Na	148.2 mg
<b>VITAMINS</b>	
Thiamin	0.115 mg
Vitamin A, IU	530 IU
Vitamin A, RE	53 mcg_RE
Vitamin B-6	1.3 mg
Vitamin C, ascorbic acid	80.8 mg
Vitamin E	1.69 mg_ATE
Water	11.898 g
Zinc, Zn	1.09 mg

\*Source: US Food & Agriculture Department

**Triselecta S.A**

**Food Facility Registration Number:** 12266762814

**GLN Processing Plant:** 8435046300005

**Sanitary Registration Number:** ES. 24.0001017/MA

**Food Industry Registration Number:** 29/04181

**IFS COID:** 42969

**Organic Certification Number:** CE-007154-2020

Málaga, Spain, January 09<sup>th</sup> 2023

Food Safety Team

