



# ***TEFF***



***Product specs for Teff-Hflour***

***Produced by HEALTHY GRAINS BV***

***Supplied by WHITE\*STAR GMBH***

***v. mrt 2019 Hflour***





## **TEFF GRAIN**

Teff is an ancient grain.

Traditionally teff is used by East-Africans to bake a flatbread, called injera.

Recently teff has been discovered by a selected group of modern western consumer because of its nutritional qualities.

### **FIBERS**

One of its most appealing qualities is the amount of healthy fibers. Traditionally bread, pasta, breakfast cereals and potatoes provided us with sufficient (some 26 grams) of fibers a day. The industrialization of nutrition after World War II asked for easy to use flours. Since 1960 we use different varieties of grains and potatoes. Unforeseen consequence is that our nutrition lacks nowadays in water soluble fibers. 90% of the western population consume less than 6 % of fibers per day.

Teff has not been modified and is with 25 % fiber an excellent source of healthy fibers. It is becoming clear that in water soluble fibers are essential for human health.

### **MINERALS**

Grains are generally a good source of minerals. Teff is not only a good source but rich in different minerals.

Like iron, magnesium, zinc and manganese.

Teff also comes with some 173 mg of calcium per 100 grams.

### **SUPERFOOD?**

Many insiders call teff a super food. In our company we see teff as being special because it still contains all the beautiful qualities for humans which most grain lost during the industrial revolution in the last 80 years.



## ORGANOLEPTIC SPECIFICATIONS

### General specifications of the Hflour

Color	white grey
Smell	none
Taste	neutral slightly nutty
Origin seeds	Zambia
Pureness	99,5 % of teff
Origin flour	Germany
Producer	Stuhrer Nahrungsmittel Ag in Stuhr - patr of Harries AG
Water retention of flour	qualifies in standard test as good

## Energy

### Energy from:

Fat	65	kJ	16	kcal
saturated	22	kJ	6	kcal
mono-unsaturated	22	kJ	6	kcal
poly-unsaturated	22	kJ	6	kcal
Carbohydrates	939	kJ	233	kcal
Protein	199	kJ	48	kcal
<b>TOTAL</b>	<b>1204</b>	<b>kJ</b>	<b>297</b>	<b>kcal</b>

## Labeling

Nutrient (values per 100 g)	Typical value	range		unit	% rdi	
Calories	297			kcal		
Calories from Fat	16			kcal		
Calories from SatFat	6			kcal		
<b>Water</b>	<b>12,0</b>	<b>10,0</b>	-	<b>13,8</b>	g	
Protein	13,3	10,0	-	13,1	g	16%
Carbohydrates	62,8	55,3	-	58,8	g	18%
Dietary Fiber	29,8	15,2	-	27,3	g	
Soluble Fiber	22,8	12,5	-	22,8	g	56%
Sugars	0,6	0,4	-	0,8	g	
Other Carbs	62,8	55,3	-	58,8	g	
Fat	2,0	1,8	-	2,3	g	3%
Saturated Fat	0,7	0,6	-	0,8	g	3%
Mono Fat	0,7	0,6	-	0,8	g	
Poly Fat	0,7	0,6	-	0,8	g	
Trans Fatty Acid	0	0,0	-	0,0	g	
Cholesterol	0	0,0	-	0,0	mg	



**Protein**

**Protein - Amino Acid Composition**

Amino acid	typical	from	to	unit	% of rdi
Isoleucine *	441	420	- 500	mg	59%
Leucine *	940	880	- 1050	mg	90%
Lysine *	331	310	- 340	mg	37%
Methionine (S)	377	377	- 460	mg	60%
Cystine (S)	208	208	- 220	mg	
Phenylalanine	614	560	- 670	mg	97%
Tyrosine	403	403	- 560	mg	
Threonine *	449	430	- 490	mg	85%
Tryptophan *	116	100	- 140	mg	44%
Valine *	604	560	- 680	mg	80%

**Carbohydrates**

**Specification carbohydrates**

per 100 gram Teff

carbohydrates	<b>73</b>	
fast digestable		<b>13</b>
Uronsaure (colorimetrisch)		0,1
arabinose		0,1
galactose		0,1
glucose		0,2
galacturonsaure		0,1
fast digestable starch (FS)		12,4
slow digestable		<b>37</b>
slow digestable starch (SDS)		37,0
in water soluble fibers	<b>23</b>	
HMW (High Molucar Weigth)		0,9
LMW (Low Molucar Weigth)		1,6
resistant starch		20,5
	<b>73</b>	<b>73,0</b>

**Vitamins & Folate**

**Vitamins & Folate**

Nutrient	typical value	range	unit	% RRDI
Vitamin A - IU			IU	
Vitamin B1 - Thiamin	0,62	0,10 - 0,77	mg	55%
Vitamin B2 - Riboflavin	< 0,1	< 0,1	mg	7%
Vitamin B3 - Niacin	0,89	0,54 - 1,29	mg	6%
Vitamin C	0,28	0,11 - 0,40	mg	
Vitamin D - IU			IU	
Folate	< 0.02	< 0.02	mg	5%
Folate, DFE			mcg	
Phytic acid	182	100 - 500	mg	



Healthy Grains bv

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## Minerals

### Minerals

	Typical value	from		to	unit	% RDI
Calcium	194	140	-	180	mg	19%
Iodine	0				mcg	
Iron	7,6	4,9	-	6,6	mg	56%
Magnesium	194	150	-	210	mg	41%
Phosphorus	403	370	-	400	mg	44%
Potassium	477	430	-	480	mg	12%
Sodium	12		< 10		mg	3%
Zinc	4,6	3,2	-	6,3	mg	27%
Ash	2	2,1	-	2,3	g	
Phytic acid	182	100	-	500	mg	



## Food safety

Healthy Grains' Teff-grain is delivered in accordance with EU-food regulations guidelines and USDA regulations.

Healthy Grains' teff is produced by selected farmers.

The production, harvest, storage, processing and packing of Teff is done under strictest control of Healthy Grains' agricultural and quality nutritional experts.

Teff-grain is free of gluten (industrial standard gluten < 20 ppm tested by certified Laboratory (quantitative determination of gluten (gliadin x2): ELISA Method eq. AOAC 2012.1).

Organic teff is produced according to SKAL-regulations and SKAL certified.



## Residues

COMPONENTS	method	typical value	unit
type of residue	method		
Gluten	Quantitative determination ELISA AOAC 2012.01	< 20 ppm	p.p.m.
Glyphosate	HM-MA-M 02-058, LC-MS/MS: 2017-08a11	regulation (EC) 396/2005	mg/kg
Pesticides GC	\$64 LFGB L 00.00-115, mod.: 2015-03	regulation (EC) 396/2005	mg/kg
Pesticides LC	\$64 LFGB L 00.00-115, mod.: 2015-03	regulation (EC) 396/2005	mg/kg
Organochlorine pesticides		regulation (EC) 396/2005	mg/kg
Organophos. pesticides		regulation (EC) 396/2005	mg/kg
Pyrethroids		regulation (EC) 396/2005	mg/kg
Further pesticides, synergists		regulation (EC) 396/2005	mg/kg

## Micro-biological values

COMPONENTS	method	typical value	from - to	unit
micro-organism	method			
Enterobacteriaceae	Method (ISO): 21528-2	1100	10 <sup>3</sup> - 3,5 * 10 <sup>3</sup>	cfu/g
Lactic acid bacteria	Method (ISO): 15214	< 10	<	cfu/g
Yeasts, osmotolerant	Method (ISO): 21527-2	< 100	< 120.000	
Moulds, osmotolerant	Method (ISO): 21527-2	1200	< 800.000	cfu/g
Escherichia coli	Method (ISO): 16649-2	< 10	< 100	cfu/g
Aerobic plate count	Method (ISO): 4833-1	6800	3 * 10 <sup>3</sup> - 2 * 10 <sup>4</sup>	cfu/g
Bacillus cereus	Method (ISO): 7932	100	< 400	cfu/g
Listeria monocytogenes	Method (ISO): 11290:1	not present in 25 g	not detected in 25 g	cfu/g
Staphylococcus aureus	Method (ISO): 6888-2	< 10	< 10	cfu/g
Clostridium perfringens	Method (ISO): 3937	< 10	< 10	cfu/g
Salmonella	Method (ISO): 6579	not present in 25 g	not detected in 25 g	cfu/g

## Metals and mycotoxins & other elements

COMPONENTS	method	typical value	unit
Metals and other elements	method		
Cadmium (Cd)	Method: ICP-MS NEN-EN 13805 & 15763	< 0,010	mg/kg
Lead (Pb)	Method: ICP-MS NEN-EN 13805 & 15764	< 0,05	mg/kg
Arsenic (As)	Method: ICP-MS NEN-EN 13805 & 15765	< 0,040	mg/kg
Mercury (Hg)	Method: NEN-EN 16277 & 15763	< 0,005	mg/kg



**Allergens**

**ALLERGENS**

not present    in receipt    can contain traces    control in place

Raw materials and/or derivatives

- Milk and products thereof
- Eggs and products thereof
- Peanuts and products thereof
- Soy and products thereof
- Fish and products thereof
- Nuts and products thereof
- Mustard and products thereof

  
  
  
  
  
  


**Cereals and products thereof**

see specific tabel

- Sesam and products thereof
- Celery and products thereof
- Crustaceans and products thereof
- Molluses and products thereof
- Strains and enzymes
- Sulphur dioxide and sulphites
- Lupin and products thereof

  
  
  
  
  
  


**Specific for baby and children**

**ALLERGENS**

not present    in receipt    can contain traces    control in place

Other allergens/intolerances (Specific to Baby Food)

- Buckwheat
- Latex Group (Banana, Chestnut, Avocado, Kiwi)
- Rice
- Maize
- Peach
- Other prunoids: plums, cherries, apricots
- Beef and products thereof
- Chicken and products thereof
- Pork and products thereof
- Igname (tuber)
- Matsutake (mushroom)
- Glutamate, ribonucleic inosinates & derivatives
- Latex
- Saccharose (added)
- Coriander
- Cocoa
- Pulses/beans
- Parsnip
- Vanillin



Cereals

ALLERGENS	not present	in receipt	can contain traces	control in place
<u>Cereals and products thereof</u>				
Wheat	<input type="checkbox"/>			
Glucose syrup and products thereof (Wheat)	<input type="checkbox"/>			
Maltodextrins (Wheat)	<input type="checkbox"/>			
Dextrose and products thereof (wheat)	<input type="checkbox"/>			
Polyols (Wheat)	<input type="checkbox"/>			
Ethanol (Wheat)	<input type="checkbox"/>			
Barley	<input type="checkbox"/>			
Iso-glucose syrup (barley)	<input type="checkbox"/>			
Rye	<input type="checkbox"/>			
Oats	<b>x</b>		<input type="checkbox"/>	<input type="checkbox"/>
Spelt	<input type="checkbox"/>			
Hybrid strains (triticale)	<input type="checkbox"/>			
Kamut	<input type="checkbox"/>			
Iso-glucose syrup from cereals ≠ (wheat or barley)	<input type="checkbox"/>			
Maltodextrins from cereals ≠ wheat	<input type="checkbox"/>			
Dextrose from cereals ≠ wheat	<input type="checkbox"/>			
Polyols from cereals ≠ wheat	<input type="checkbox"/>			
Ethanol from cereals ≠ wheat	<input type="checkbox"/>			





## Regulations

### Regulation

Regime	Teff is classified under EU-guidelines group 0500000 CEREALS under Code 0500040: millet
EU-guidelines	The product confirms at the EC Directives 396/2005 and 1830/2003.
EU-country regulation	The product confirms to the EU countries food safety regulations
Analysis	The products comes with official analysis from authorised Human Food laboratories
Domain of analysis	The analysis will include all type of test mentioned under Food safety in this documents This includes micro-biological values, metals and other elements, residues and mycotoxines The mentioned elements will be tested using the mentioned method or legal alternative
Marking according to the hazardous product regulations	Not necessary
Water danger classification	Does not endanger water
Further prescriptions, restrictions and regulations:	TEFF is a food ingredient which can be added to all foods, provided that no other special instructions have to be observed due to the composition of those foods.
Allergen information	If any change might occur to the situation as given in the paragraph about allergens Healthy Grain will instantly inform you and issue a renewed version of this document

### Other relevant information

### Other information

Chemical characterization	flour made from natural teff seeds (bot. Eragrostis tef) from conventional agriculture, selected
First aid measures inhalation	move to fresh air
First aid measures eyes contact	rinse with water
Suitable extinguishing agents	water spray, foam, carbon dioxide, dry chemical powder
Handling	usual precautionary measures have to be observed when working with combustible materials
Storage	dry (below 60% of humidity) and cool (below 14 degree) or close covering plastic bags
Shelf life stability	when correctly stored at least 24 months
Stability and reactivity	Neither dangerous reactions nor dangerous decomposition products have been observed
Information on toxicity	as to toxicity, teff is harmless; no allergenic reactions have been observed (yet)
Information about ecological effects	Teff is an environmental friendly naturel product, ecologically harmless
Indication about disposal	Without any problems (ladfill, combustion, natural fertilizer, etc.)
Information about transport	Non-hazardous goods according to EU transport guidelines and EU-country-regulations
Exposure limit & personal protection	No smoking, no open fires

### GMO Statement

The product confirms at the EC Directives 396/2005 and 1830/2003. Healthy Grains bv certifies by this letter that all of our products and raw materials are not derived from or contain any Genetically Modified Organisms (GMOs).

### Packaging

Packaging type: bags of 5, 25 or big bags of 1000 kg Food grade certified bags on Euro pallets of 750 kg, with a layer of carton at the bottom of the pallet.

25kg bags are stored at the pallet in 2 thicker (> 2 mm) plastic bags which ensures that insects can't get into the product nor can put any eggs in the product. One is installed bottom up and the other top-down.

### Quality management

All Healthy Grains' Teff is produced and processed in line with strictest guidelines to ensure optimal sustainability and traceability. All Teff is processed according the HACCP standards.

### Supplied by

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