



DISCOVERING THE WORLD OF **MALT.**



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 VIKING MALT

MALT & CEREAL EXTRACTS FOR BREWING

#4 WEBINAR

17 | 06 | 2020

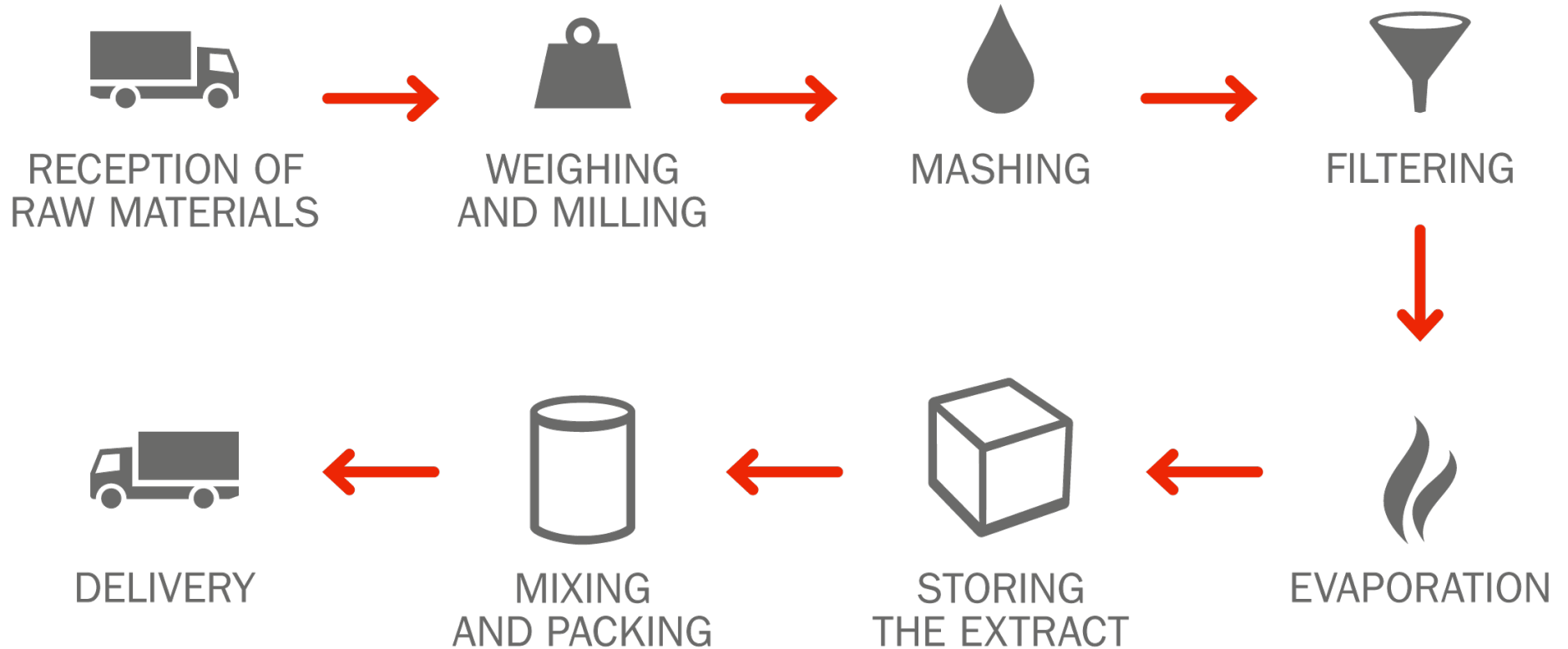
Senson Oy – malt & cereal extract producer



- Viking Malt and Senson are sister companies belonging to Polttimo Group
- Strong heritage in natural processing of cereals
- Co-operation and sharing of know-how and expertise in the group
- Senson's ingredients for extracts are purchased through Viking Malt
- Senson's speciality in natural malt beta-amylase enzyme preparation



Malt & cereal extract process

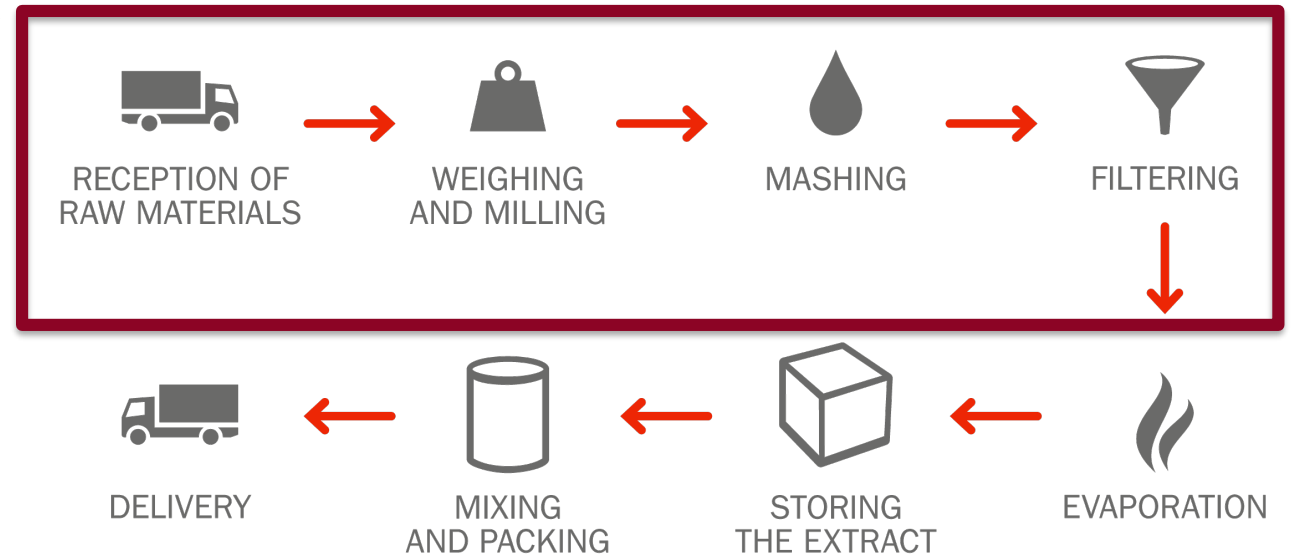


Malt extract process similar to brewing process

No kettle but instead evaporation for concentration of produced worts

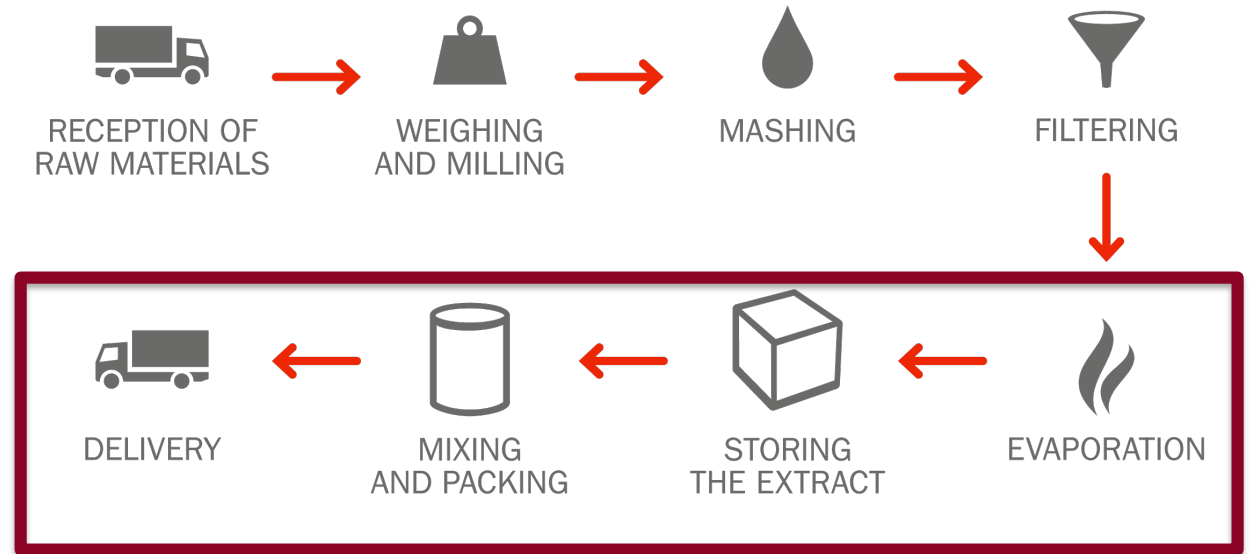
Malt and cereal extract – brew house

- Raw-materials: **malts, cereals, water**
- 100% pure named extract or mix of different malts and/or cereals
- Processing aided by barley malt enzyme and for specialities some additional enzymes
- After filtering - **Wort**
- If sold as such there would be issues with
 - cost of transportation
 - ideal matrix for yeast and mold/bacterial growth -> vulnerable natural product



Malt and cereal extracts – evaporation & packing

- Evaporation in low pressure, medium temperature to concentrate wort for:
 - Lower water activity level
 - Increased viscosity
 - Improved stability
- Packaged to:
 - Improve stability
 - Have easy handling
 - Match size according the end user requirement and for optimal usage



Storing and transportation recommendation is to have even temperature below 20°C.

Extract basics – detailed product info on PDS

BREWER'S CLASSIC

Viking Pilsner Malt



Product data sheet

Maltax 10



MALT SPECIFICATION

moisture	%	max. 5.0
extract fine	% dm	min. 80.0
color	°EBC	3.3–4.3
protein	% dm	max. 11.5
sol. nitrogen	mg/100 g	600–750
free amino nitrogen	mg/l	130–170
beta-glucan	mg/l	max. 200
friability	%	min. 80
diastatic power	WK dm	min. 250

Specification			
Dry matter (refr.)	80–82	°Brix	Refractometer
Colour (10 % w/v solution)	3–15	°EBC	Analytica-EBC 4.7.2 and 5.3, modified
pH (10 % w/v solution)	5.2–6.0		Analytica-EBC 8.17
Total viable count	< 10 000	cfu/g	ISO 4833-1:2013
Yeasts	< 100	cfu/g	ISO 21527-1:2008
Moulds	< 100	cfu/g	ISO 21527-1:2008

Typical Chemical and Physical Properties

Viscosity	25 000–30 000	mm ² /s @ 20 °C
Diastatic activity	0	DP* /g
Density	1.4	kg/l
Free Amino Nitrogen (FAN)	120–200	mg/l (10% w/v)
Dextrose equivalent	~50	
Saturated fatty acids	0	g/100g
Betaglucans	< 0.1	% / dm
Gluten content	1 000–3 000	ppm
Heavy metals		
Pb	< 0.05	ppm
Hg	< 0.005	ppm

Nutritional Information (in average / 100g)

Energy	312	kcal
	1327	kJ
Protein	4.6	g
Carbohydrates	73	g
of which sugars	45	g
of which fructose	1.9	g
of which starch	0	g

Malt and cereal extract types

MALT EXTRACTS

- Light
- Caramel/Reddish
- Black

CEREAL EXTRACTS

- Wheat
- Oat
- Rye

SPECIAL EXTRACTS

- Organic
- Gluten free
- Sour



Malt Extracts – Classic liquid malt extracts

	Light extracts	Caramel extracts	Black extracts
Main ingredient	Pilsner malt	Caramel Malt/Pilsner malt	Black malt
Extract type	Light malt flavoured extract with colour similar to pale ale malt	Red color, recognizable caramel malt flavour, taste and body	Black malt, roasted, chocolate flavors, dark color and antioxidative properties
Typically used for	<ul style="list-style-type: none"> • Delivering fermentable sugars and body • Base extract for malt based beers • <u>Gravity adjustment</u> • Process optimisation 	<ul style="list-style-type: none"> • <u>Red colour and caramel flavour</u> • Process optimisation 	<ul style="list-style-type: none"> • <u>Colour adjustment</u> to specification especially for light colored beers • Speciality beers
Other notes	<ul style="list-style-type: none"> • High dry matter content • Zero waste • 20% solution to deliver 16 P wort 	<ul style="list-style-type: none"> • High dry matter content 	<ul style="list-style-type: none"> • Small volume additions delivering significant difference • 0,001% w/v for 1 EBC

USED TYPICALLY FOR TRADITIONAL BEERS.

Cereal Extracts – Oat, Rye, Wheat, Multigrain

	Oat extracts	Rye extracts	Wheat extracts
Main ingredient	Non-malted oat	Non-malted rye	Non-malted wheat and barley malt
Extract type	Light cereal flavoured extract with light colour	Light cereal flavoured extract with light colour	Light wheat flavoured extract with light colour + appearance
Typically used to	<ul style="list-style-type: none"> • Deliver oat in different concentrations to beers • Avoid additional oat grain intake and avoid milling adjustment required for optimal extraction of oat • Bring sweetness and body to final product – late dosing 	<ul style="list-style-type: none"> • Deliver rye in different concentrations to beers • Avoid additional rye grain intake and avoid milling adjustment required for optimal extraction of rye • Bring sweetness and body to final product – late dosing 	<ul style="list-style-type: none"> • Deliver wheat in different concentrations to beers • Avoid additional wheat grain intake and avoid milling adjustment required for optimal extraction of wheat • Bring some turbidity, improve foam and deliver wheat characteristics to end product

GROWING VOLUMES FOR SPECIALITY AND LOW-/NON-ALCO – PRODUCT CATEGORIES TYPICALLY USED IN THE LATE PROCESS STEPS TO DELIVER 100% WHAT IS NEEDED.

Special Extracts – Organic, Gluten free, Sour

! Growing interest towards these categories from consumers.

	Organic extracts	Gluten free extracts	Sour extracts
Main ingredient	Light and black organic malt	Light and black malt	Pilsner malt and barley
Extract type	Organic light and black malt extracts with typical malt extract characteristics	Light and black malt extracts with gluten free enzymatic treatment and typical malt extract characteristics	Light coloured lactic acid bacteria fermented sour extract with unique flavour combining maltiness with natural sourness
Typically used to	<ul style="list-style-type: none"> • Deliver fermentable sugars/body • Base extract for GF malt beers • Colour adjustment to specification • All the basic reasons with organic edge 	<ul style="list-style-type: none"> • Deliver fermentable sugars/body • Base extract for GF malt beers • Colour adjustment to specification • GF beers without enzymatic treatment 	<ul style="list-style-type: none"> • Sour beers <ul style="list-style-type: none"> • Wort volume increase on top of your own kettle souring batch • By addition on top of normal wort • Mash pH adjustment
Other notes	Flavour and colour according to malt base used	Flavour and colour according to malt base used	No lactic acid bacteria activity present - just 100% flavour

GROWING VOLUMES FOR ADDED VALUE BEERS, SPECIALITY AND LOW-/NON-ALCO – PRODUCTS.

Natural malt beta-amylase preparation

Malted barley is selected for being main ingredient for brewing for many different reasons. One of them being great enzymatic activity.

Senson is producing a natural malt beta-amylase enzyme preparation called Betalase 1500 EL derived from malted barley containing:

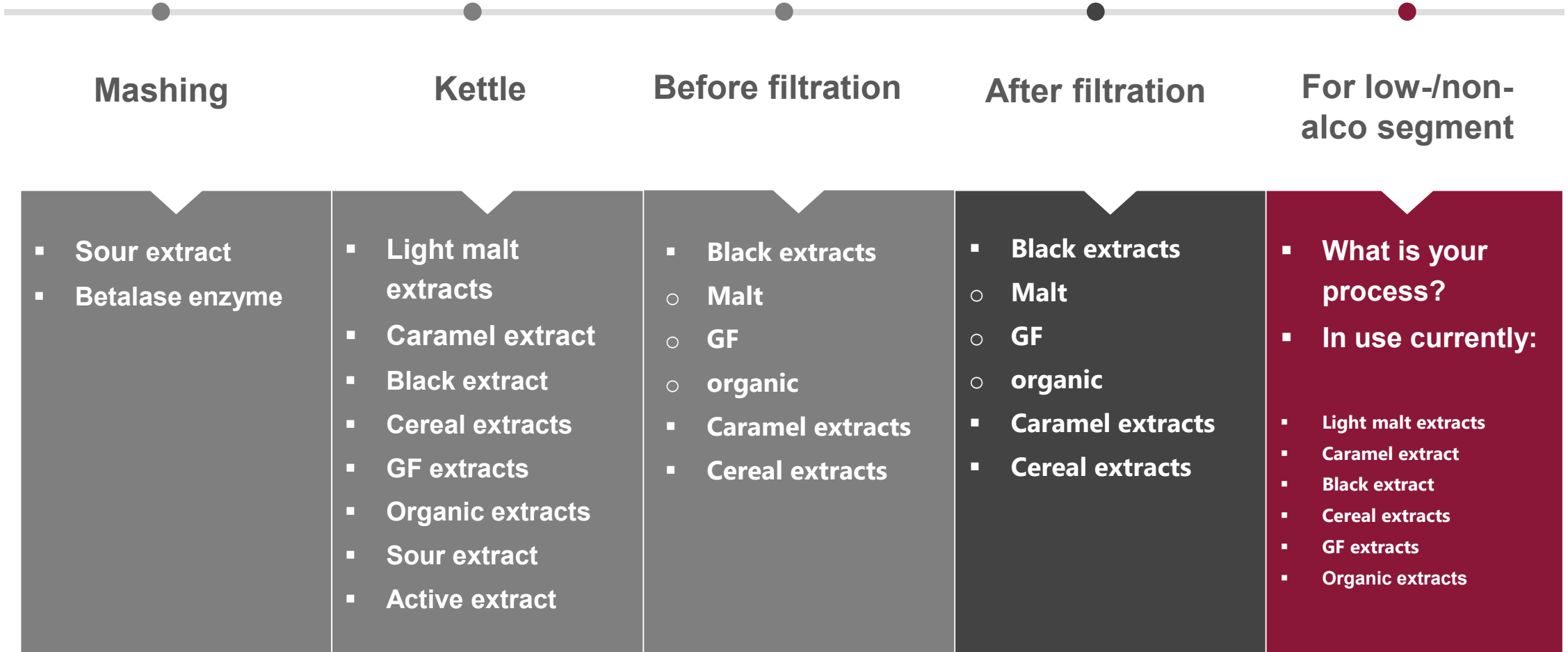
- beta-amylase activity
- other hydrolytic enzyme activities



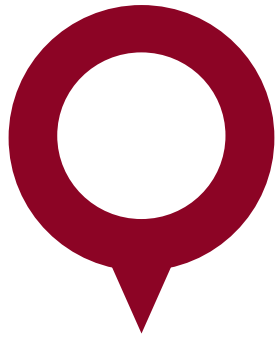
Natural malt beta-amylase - Betalase 1500 EL

It can be used as a processing aid in the brew house, in mashing to increase the saccharification power if the amount of malt used is not sufficient, especially in brews with a high amount of adjuncts or when other cereals than barley is used.

Product range and where to use them



Malt and cereal extracts – delivering competitive edge



Extracts make it possible to

- Increase process efficiency especially during peak season
- Increase product portfolio to products not being possible for all the breweries before
- Enable to secure product specifications
- Deliver right balance and complexity for speciality and new growing product categories



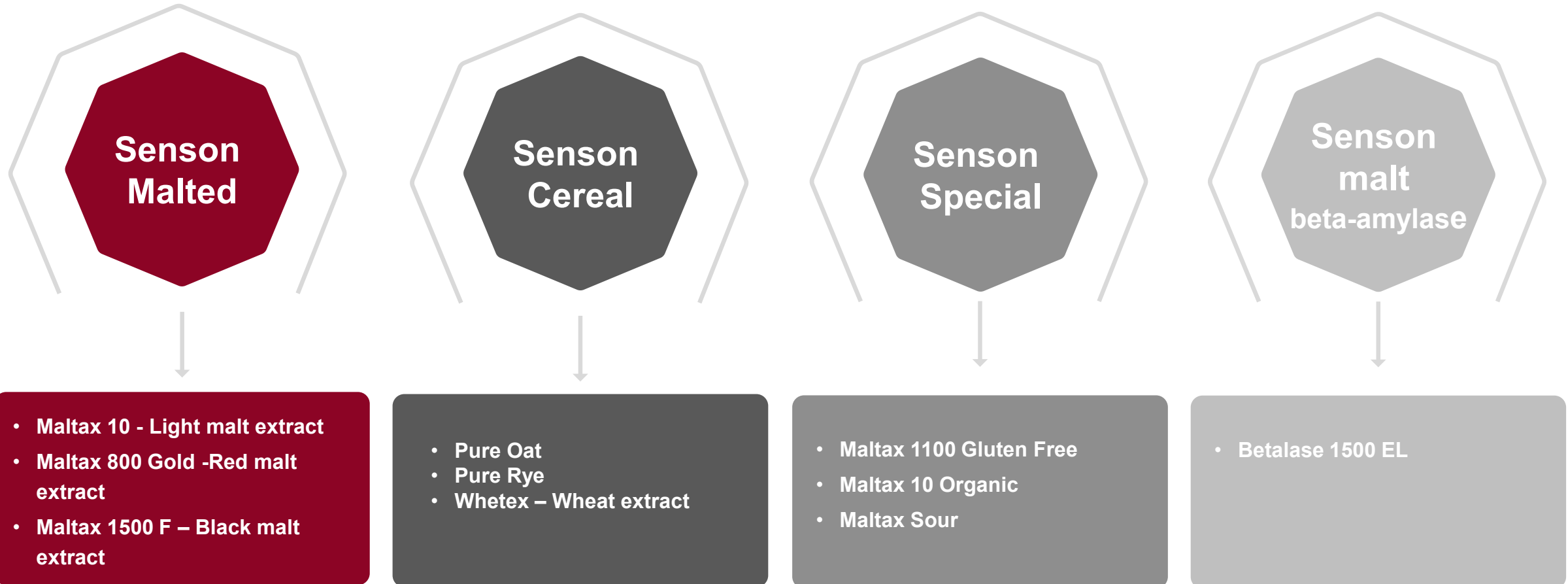
Malt and cereal extracts

- Same ingredients that are used brewery already, just in liquid form
- No other added ingredients
- Single or mix of malts/cereals available
- Kettle dosing allowing gravity adjustments or new type of beers
- Late dosing allowing final adjustment
 - compare dry hopping -
- Pasteurisation recommended

Senson portfolio



Please visit our website for basics and please feel free to contact our team.
We are happy to find best options for you to trial.



Some practical tips for use of extracts

- 👤 What are you looking for?
- 👤 Understand the PDS info and do not be afraid to ask for more details
- 👤 Taste the samples and test them directly to different products
- 👤 Consider the process
 - Microbiology
 - Extract's sugar and dry matter content
 - FAN
 - Turbidity
 - Pasteurisation
 - Ideal package size for your production batch



It is just wort...that is what most us are most familiar with...



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