

 **SOUND**

 **SMELL**

 **TEXTURE**

 **APPEARANCE**

 **TASTE**



“LE PAIN” *in words*

The idea behind the project

For professionals of the bakery sector, sensory analysis is not only a key aspect of product assessment, but also a communication tool increasingly used by consumers.

Face to this trend, the Lempa and Lesaffre have acknowledged the current lack of standardised vocabulary in the wheat/flour/bread industry in order to describe the evaluation criteria for bread-making products.

As leading experts in sensory expertise, **Lempa and Lesaffre have jointly developed a lexicon of highly precise sensory attributes that are adapted to crusty breads.** This new tool combines two approaches: the more subjective approach of consumers and the more objective angle of the experts.

We propose to share with you the result of their study during 7 steps of publishing, including the present one.



Lesaffre is a leading global player in devising, producing and bringing to market solutions for breadmaking, nutrition, health and the protection of living organisms based on yeast and other fermentation products. Lesaffre works alongside its customers and partners, confidently undertaking to help better feed and protect the planet.

LEMPA is the French national laboratory for Baking and Pastry-making that was founded 20 years ago by the French National Baking and Pastry-making Confederation and the Union of Professional Baking Equipment Suppliers (EKIP). LEMPA offers independent expertise for all professionals in the baking and pastry sector and assists their innovations.

Please note

This lexicon only applies to crusty breads, i.e the following types of bread:

- no added fat, or sugar
- brown crust
- baked on a deck, tray, plate or in dry heat (not in a tin).

This booklet contains terms organised according to sensory group:

- each expert term is followed by its equivalent consumer term
- examples are given for each expert attribute in the form of photos, recipes, etc
- on occasion, various terms used by consumers may coincide with those used by experts

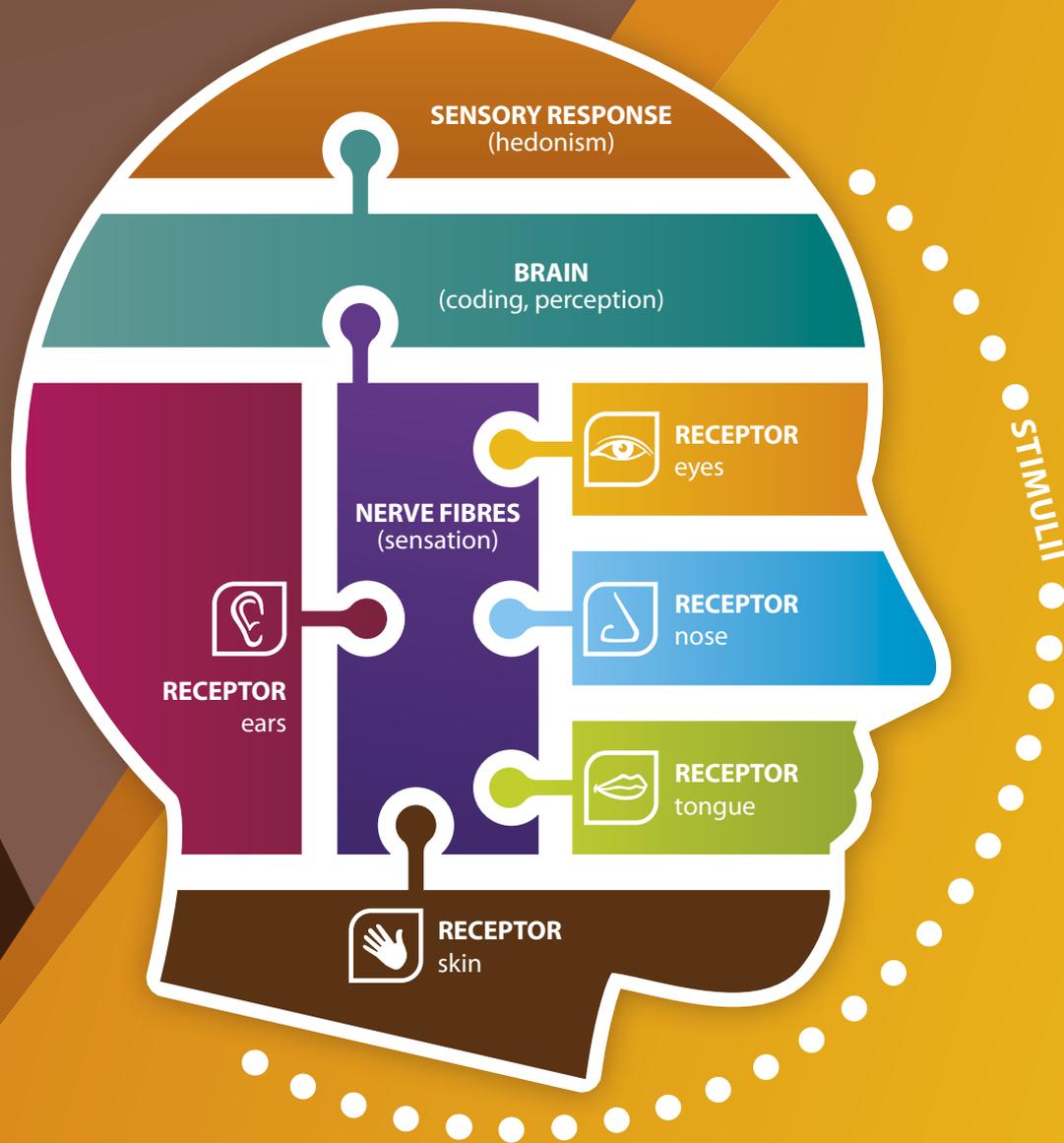
About Sensory Analysis

Sensory analysis is an essential tool for industrials, in store bakeries and craft bakeries.

- **Marketing:**
Development and validation of product concepts, analysis of competition
- **Research & Development:**
Formulation and process optimisation
- **Quality:**
Follow-up of raw materials, finished products...

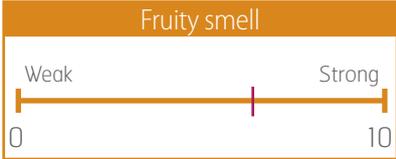
This technique involves a human panel to depict and describe the organoleptic properties (appearance, smell, sound, texture, taste) of a product.





The aromas released in the mouth when eating bread travel to the nose via the back of throat, that is call the retronasal olfaction. Such aromas are not to be confused with those perceived when smelling the product through the nose (odours).

Two sensory approaches

	Test	Panel	Product assessment and presentation
Expert vocabulary	Objective analysis of various sensory criteria or attributes used as a measuring instrument	Expert – 10 to 15 people having undergone 20 hours specialist training and monitored to regular performance controls	<p>Scoring scale with identified criterias (attribute with precise definition)</p> 
Consumer vocabulary	Consumers' assessment of a product's acceptability	No training, 60 people minimum	<ul style="list-style-type: none"> • Allocation of score on assessment scale • Reasons for preference (hedonism: whether "liked/disliked") 

General good tasting practices

Tasters are required to:

- Report any physiological impediments (cold, dental care, etc.)
- Avoid smoking, wearing perfume, or eating any strong-tasting products (confectionery, coffee, etc.) for at least one hour prior to the tasting session.
- Avoid talking to other tasters when assessing the products and remain silent during the tasting session.
- Adhere to minimum/maximum amounts when tasting the products and/or assessing equivalent amounts for each product.
- Rinse out the mouth with water before tasting each product.
- Take the time judged necessary for each test.

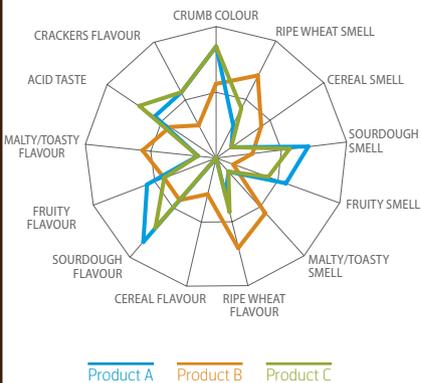
The products should be:

- Presented anonymously (coded samples).
- Presented under the same conditions. (Temperature, amounts, degree of baking).
- Assessed ideally within 1 hour of cooling. In all cases, the products should be compared at the same point in their shelf life.

Typical results

Typical conclusion

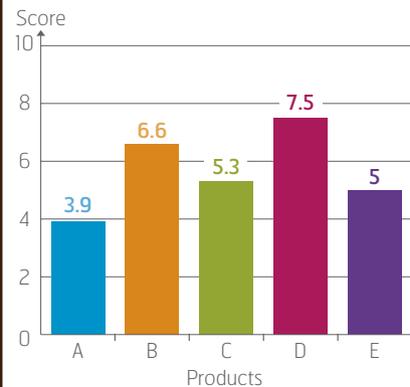
Sensory profile



Product B is characterized by stronger ripe wheat & malty/toasty smells and tastes than products A & C.

N.B.: possibility of correlation with intrusmental data TAXT+, pH meter readings, etc.

Assessment histogram



The preferred product is...



APPEARANCE

The first factor to be assessed when tasting bread is its appearance.

The assessment takes place in 3 stages: the appearance of the whole loaf, then that of the crust, concluding with an examination of the crumb of the sliced loaf.



Arnaud JACQUES

Graduated in patisserie and confectionery, graduated in baking and professional baker's certificate and master's diploma.

Test baker at LEMPA (France).

Shared experiences

« *The outside aspect of a loaf is a very important sensory factor, which bakers must address at the bakery and in the shop.*

When I carry out breadmaking tests and I am asked to give a score, the crust of a loaf can fall down on appearance if there are any visual defects, such as blistering, a blackened, flaky crust, lack of volume, defective scoring (too loose, too tight)...

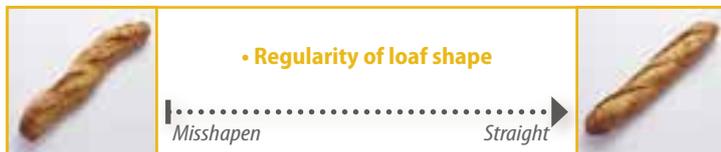
In a shop, visual marketing should not be disregarded, since it is the most influential factor: 80% of the information that reaches the consumer is via the sense of sight. Bakers must therefore give particular attention to the result on visual stimuli (colour, shape, etc.).

They have a vested interest in ensuring a good-looking loaf since this is the first thing a customer will see and is what will trigger the purchase. For some, a golden baguette will sell better than a darker one, and for others, a pointed loaf will be more attractive than a rounded loaf. Appearance is therefore a major factor in attracting the customer...»

Appearance / General Appearance



Expert vocabulary



• Regularity of loaf shape

Misshapen

Straight



• Uniformity of cross section

Asymmetrical

Symmetrical



• Development

Under-developed

Fully developed



• Scarring

Under-developed scoring

Well-developed scoring



• Intensity of crust colour

Pale

Dark



• Homogeneity of crust colour

Uneven

Even

• Spontaneous comments by experts



Consumer vocabulary

- Nice-looking, good shape, nice presentation
- Straight (varying degrees)

- Flat
- Good shape, wide

- Flat/round, well risen, fully developed, springy, well-formed, voluminous
- Good size

- Industrial-looking, craft baking, traditional

- Poor baking (under-baked, over-baked, burnt)/good baking (well-baked, baked to perfection)
- Pale, nicely browned, dark, black

- Nice, even colour

- Ordinary
- Rustic, country bread, terroir, old-fashioned appearance, dusting of flour
- Appealing, attractive, appetising

Appearance / Appearance of crust



Expert
vocabulary

• Crust colour (tint)

e.g.
GOLDEN

e.g.
BROWN



• Thickness of crust

Thin

Thick



• Shiny appearance

Matt

Shiny



• Quantity of blisters

Low

High



Consumer
vocabulary

• White, pale, cream, golden, brown, black

• Thin/thick (varying degrees)

• Dull/shiny, greasy

• Defects, spotted appearance, craters, blisters, smooth (varying degrees), gold spikes, rough surface

Appearance / Appearance of crumb



Expert vocabulary

• Crumb colour (tint)

e.g.
BEIGE/
CREAM

e.g.
GREY

e.g.
ORANGE

• Intensity of crumb colour

Pale

Dark

• Homogeneity of crumb colour

Uneven

Even

• Presence of inclusions

No inclusions

Many inclusions

• Average size of crumb cells

Small

Large

• Depth of crumb cells

Place a slice of 2 cm thick in front of a light: the more light passes through, the deeper the crumb cells.

Shallow

Deep

• Regularity in size of crumb cells

Examine the crumb cells in the slice: are they all the same size or different sizes?

Uneven in size

Even size

• Shiny appearance

Matt

Shiny



Consumer vocabulary

• Poor colour/nice colour

- White, cream, beige, yellow, grey, brownish, dark brown

• Lack of colour

- Pale colour, light, dark

• Poor colour/nice colour

- “Wholemeal loaf” type crumb, speckled, spotted

- Dense, compact, tight, compressed crumb, too much crumb/aerated crumb, open structure swollen, light
- Small crumb cells/large crumb cells

- Holes (few/many, small/large)

- Dense crumb, air bubbles, holes

- Dry/sticky, under-baked

Illustration

Appearance & Texture

Bread with molasses and beetroot



Formula

Strong flour (grauau)	2 000 g	100.0 %
Living liquid sourdough	120 g	6.0 %
Compressed yeast	60 g	3.0 %
Improver	20 g	1.0 %
Molasses	60 g	3.0 %
Cooked beetroot*	800 g	40.0 %
Gluten	20 g	1.0 %
Water	900 g	45.0 %
Salt	40 g	2.0 %
TOTAL DOUGH	4 020 g	

*Add beetroot and its juice at start of mixing

Process

Type of mixer	Spiral	Oblique axis
Mixing	4 min slow speed + 3 min fast speed	8 min slow speed + 5 min fast speed
Dough temperature	25°C+/-1°C	
Bulk fermentation	60 min	
Scaling weight	250 g	
Shaping	3 pieces plus proofing in baskets	
Final proofing	60 min at 28°C	
Baking	30 min at 235°C	

golden crust
Rustic appearance
Pinkish grey crumb
Rustic appearance
Pinkish grey crumb
Thick & golden crust
Thick & golden crust
Rustic appearance Rustic
Pinkish grey crumb



SMELL

A very important sense, which, together with appearance, forms part of the product “promise”. The smell of the loaf will dictate to a greater or lesser extent whether we want to eat it!



Thomas MARIE

Best Craft Baker
in France (2007).

Senior teacher
at the Lausanne
Hotel School
(Switzerland).



Shared experiences

« *The smell and taste of bread are often buried deep in our memories. It is not uncommon to hear consumers say that bread tasted better back in the day... I think that it has never been as good as now!* »

Consumers are tired of insipid-tasting standardised food products. Therefore, we should not disregard the rich diversity of bread that we can offer; it presents such a variety of flavours:

- *strong-tasting bread, such as a large round crusty loaf made with sourdough and with an acidic flavour and a nicely caramelised crust,*
- *a French traditional baguette made with proofing adds a slight taste of wheat and butter,*
- *a rye tart speciality from Auvergne smelling of honey and gingerbread,*
- *a roasted tasting wholegrain loaf...*

We have many organoleptic levers to convince the consumers, so let's use them... And don't forget to get them to taste your bread!!! »»

Smell

Each expert attribute is illustrated by a recipe that can be mixed in an opaque glass.



Expert vocabulary

• Caramel smell - crust



RECIPE

- ✓ 2 g liquid caramel
- ✓ 7 g water (approx.)

• Cardboard smell - crust



RECIPE

- ✓ Crumb subjected to a temperature of 4°C for 4 hours (approx. 10 g)

• Crackers smell - crust



RECIPE

- ✓ Crumbled cheese-flavoured crackers (approx. 2 g) + water (approx. 7 g)

• Acetic, vinegar smell - crumb



RECIPE

- ✓ 7 g flour
- ✓ 2 g water + 2 g vinegar
- ✓ 3 g bread crumb

• Almond smell - crumb



RECIPE

- ✓ 5 g bread
- ✓ 1 drop benzaldehyde

• Ripe wheat smell - crumb



RECIPE

- ✓ 7 g T55 flour
- ✓ 5 g milk
- ✓ 5 g white bread

• Cereal, bran smell - crumb



RECIPE

- ✓ 5 g wholemeal bread
- ✓ 5 g wholewheat flour
- ✓ 4 g water

• Fermented smell - crumb



RECIPE

- ✓ 0,2 g deactivated yeast
- ✓ 1 g water
- ✓ 5 g white bread

• Wheat smell - crumb



RECIPE

- ✓ 7 g T55 flour
- ✓ 5 g water
- ✓ 5 g white bread



Consumer vocabulary

• Caramel, biscuit, sweet

• Cardboard, neutral

• Biscuit

• Acidic, sour, sourdough, pungent

• Almond

• Dough, pancake batter, waffle batter
• Sweet

• Cereal, seeds, rye

• Chemical, fermentation, cheese, sourdough, yeast, pungent

• Cardboard, cereal, flour, neutral



Expert vocabulary

• Fruity smell - crumb



RECIPE

- ✓ Bread dough (10 g flour + 5 g water + 0.1 g compressed yeast + 0.2 g salt)
- ✓ 1 chopped plum

• Dairy/butter smell - crumb



RECIPE

- ✓ 5 g white bread
- ✓ 2 g butter

• Sourdough smell - crumb



RECIPE

- ✓ 10 g flour
- ✓ 3 g Crème de Levain®
- ✓ 7 g water

• Yeast smell - crumb



RECIPE

- ✓ 5 g bread
- ✓ 2 g fresh yeast
- ✓ 2 g dried yeast

• Malty/roasted smell - crust & crumb



RECIPE

- ✓ 5 g coffee (liquid)
- ✓ 5 g burnt bread

• Hazelnut smell - crumb



RECIPE

- ✓ 2,5 g hazelnut powder
- ✓ 3 g water

• Rye smell - crumb



RECIPE

- ✓ 10 g bread with 90% rye

• Spontaneous comments by experts



Consumer vocabulary

• Lemony, fruity, dried fruits

• Brioche, cake, dairy, buttered pasta, Danish pastry

• Acidic, sourdough, yeasty, pungent

• Chemical, fermentation, cheese, sourdough, yeasty, pungent

• Woody, burnt, coffee, caramel, mushroom, bread crust, wood fire, forest, smoky, grilled, malty, toasty, musty

• Hazelnut, walnut

• Spicy, hay, honey, gingerbread, rye

- Fresh bread, hot bread, unbaked bread
- Little, lacking, no smell, strong, pronounced, lingering smell
- Good, enticing, flavoured smell



SOUND

Crispy and crunchy to varying degrees, the sound bread makes is a very important factor that tells us about the bread's freshness.



Carine CNUdde

Bread technical development manager in a Bakery/
Viennese pastry/
Pastry business.
(BELGIUM)

Shared experiences

« I think that the texture of bread is a very important notion. I would describe it as the balance between the texture of the crumb and that of the crust. Crispy and crunchy are terms often used to describe the crust, but they are not easy to define or understand precisely.

Consumers describe it in a more intuitive way by talking about bread that is either easy or difficult to eat.

A consumer's assessment is conditioned by his use of bread (e.g. in sandwich form, or as an accompaniment to a meal). Differences between generations are also seen (thicker crust is less popular with children).

Consumers are either looking for bread with a thin, crispy crust, or a more rustic looking loaf with a thick crust. In both cases, they want their bread to keep well and remain crunchy.

To answer this market demand, Marketing and R&D work hand-in-hand. We closely track consumer trends and develop breads by choosing specific ingredients and by adjusting manufacturing processes to obtain optimum taste and desired crispiness. »



Sound / Touching the crust



Expert
vocabulary

• Crispiness

Assess the crispiness and noise made by a baguette when briefly squeezing it between the fingers and thumb.

.....
No noise Strong, crackling sound



Consumer
vocabulary

• Soft, rubbery, moist/crispy, crunchy, dry, crackers

Sound / Eating the crust



Expert
vocabulary

• Crunchiness in mouth

Take a small piece of baguette (crust and crumb). Place it between the upper and lower molars and bite into it several times. Assess the number and noise level of the crunching sounds heard.

.....
No crunching sounds Several crunching sounds...
e.g. straight process baguette,
3% yeast, baked in fan oven



Consumer
vocabulary

• Crunchy, crispy, crumbly

Illustration

Sound

baguettresse

Formula

Type 65 flour	900 g	90.0 %
Type 80 flour	100 g	10.0 %
TOTAL flour	1 000 g	100.0 %
Water	620 g	62.0 %
Living liquid sourdough	60 g	6.0 %
Compressed yeast	15 g	1.5 %
Improver	5 g	0.5 %
Salt	20 g	2.0 %
TOTAL DOUGH	1 720 g	

Process

Type of mixer	Spiral	Oblique axis
Mixing	5 min slow speed + 2 min fast speed	6 min slow speed + 3 min fast speed
Bulk fermentation	70 min	
Scaling weight	350 g	
Rounding		
Waiting time	20 min	
Shaping	Baguette + braid on 1/3 length	
Final proofing	45 mins at 28°C	
Storage at 4°C	12 – 18 h	
Baking	20 mins at 235°C	



Crispy Crunchy
Crunchy Crispy
Crispy Crunchy
Crispy Crunchy
Crispy



TEXTURE

Perceived initially by the sense of touch, then in the mouth, the texture of a bread is an essential factor.

The taster must take into account the crust's texture: is it resistant? Not forgetting the texture of the crumb: is the bread moist/fresh, melt-in-the-mouth or sticky?



Hubert CHIRON

From four generations of bakers, Hubert Chiron has a master's qualification in baking and a certificate from the American Institute of Baking. He is in charge of the experimental bakery at the French National Institute for Agronomic Research (INRA) in Nantes.



Shared experiences

« Of all the major bread categories in the world, crusty breads stand out for more than one reason. Their dual texture gives them unique crustiness combined with a specific chewing.

Bakers have great flexibility in modifying the characteristics of their bread by careful selection of ingredients and manufacturing process. In this way, they can respond to the needs and desires of their customers.

The crusty bread family is fascinating since it offers the widest choice of sizes, shapes, colours of crust and densities. I am also convinced that it is this bread category, regardless of its country of origin, that has the largest sensory spectrum in terms of both texture and flavour.

At the shop, the external appearance can be both remarkable and reassuring, but sometimes also, disappointing for the consumer. Once the product is in the consumer's hand, the judgment becomes critical: weight, freshness, degree of crustiness and, of course, smell!

The degree of satisfaction experienced on the first bite is, in itself, the first appealing factor and the "attack" reveals the characteristics of the crust. Well-baked breads resonate in the mouth, while others make no noise when chewed. Each has his own preference!

When carefully sliced, the crumb surface reveals the cell structure. Once again, the overlapping of cells, whether regularly structured (foam-like) or irregular, determines the palatability of the bread. Similar in its behaviour and mechanical properties to solid foam, the crumb of a crusty loaf can be highly distinctive. The shape of the cells, the reflection of light on the cell walls and the touch of the bread are all indications of a good bread to a consumer.

The crumb is a key component that, impacts upon the way that the loaf is used. Loaves can vary enormously, for example, regarding their resistance to spreading. Bakers in the old days were highly imaginative and indulged in the liberal use of imaged attributes: "hare's ear" scoring, a "long and silky" crumb with "pearly" surfaces. This bread category generates a rich vocabulary, not purely confined to the hegemonic notion of softness!

The connection between a bread's texture and its taste is still the center of debate. No one knows exactly where the "true" aroma lies within the interconnected winding, labyrinthine passages of a bread's crumb. The cell walls that ensure a cohesive texture trap moisture and minimise crumbling, but still have many secrets to reveal...

It is commonly said, and rightly so, that bakers who score their loaves are affixing their signature. I think that crusty loaves are also very appealing for the huge diversity of their "alveolar" architecture, which is the true hallmark of the baker. »

Texture / Touching the crust



Expert vocabulary

• Fragmentation

Assess the number of fragments/cracks formed on the crust when the sides of the baguette are squeezed



• Resistance to tearing

Assess the behaviour of the crust when you break the baguette in two (8 cm). How much effort is required to break the baguette in two?



Consumer vocabulary

• Integrity of crumb/crumblly, flaky, too many crumbs, stale, cracked, split, firmly attached to the crust

• Not hard, soft, supple, easy to tear in two, breaks easily
• Hard, brittle, like cardboard, rigid, difficult to tear in two

Texture / Eating the crust

• Resistance to bite

Assess the effort required to bite into the bread and the resistance of the crust to this action



• Supple, soft, elastic, firm, chewy, hard to chew, compact, rubbery, "painful on gums", rough, sharp

Texture / Touching the crumb

• Moistness of crumb

Gently press the surface of the crumb and assess persistent humidity



• Hard, crumbly, dry, brittle/soft, humid, fresh bread

• Elastic texture

Firmly press the centre of the slice firmly with one finger, then assess the crumb's ability to spring back to its original shape



• Firm/soft, supple, easily squashed, chewy, plastic, marshmallow, elastic, rubbery

Texture / Eating the crumb



Expert vocabulary

• Melt-in-the-mouth/absorption

Place a piece of crumb against the palate and let it dissolve whilst assessing the amount of saliva and time required for the crumb to decrease in volume

.....▶
Hard to dissolve: lot of saliva required
Melt-in-the-mouth: dissolves quickly with a small amount of saliva. E.g.: candy floss

• Moistness of crumb

Place a piece of crumb in the mouth and assess the level of freshness/moisture

.....▶
Dry mouth-feel
Moist/fresh mouth-feel

• Gummy texture

Assess the development in the structure of a piece of crumb placed in the mouth without chewing

.....▶
Not-gummy
Gummy: forms a ball of dough that is difficult to break down. E.g. butter biscuit

• Sticky texture

Assess the stickiness of a piece of crumb between the teeth. Chew the piece of crumb 10 times, by gently biting up and down to assess the stickiness (whether or not a film is created between the jaws)

.....▶
Non-sticky
Sticky

• Spontaneous comments by experts



Consumer vocabulary

• Melt-in-the-mouth, chewy, creamy, covering, soft, disintegrates quickly/rough

• Filling, dense, stuffing, heavy, dry, makes you thirsty/ easy to digest, fresh bread, cold, moist

• Floury, grainy, gritty, fibrous/spongy, gelatinous, viscous

• Compact, dense, heavy, gummy

• Rubbery, chewing gum

• Sticky, glue-like, tacky

• Good resistance/no resistance, porous

• Smooth, even

• Greasy/oily



TASTE

The taste of bread is a major factor in the act of purchase, especially a renewed purchase.

Our taste buds allow us to evaluate whether we appreciate the bread and define its aromatic character.



Shared experiences

Patrice
VIOLEAU

R&D manager
in a Bread/
Viennese pastry/
Pastry business
(FRANCE)

« *The taste of bread requires specific terminology and it is important to adapt those terms to the audience.*

Between us professionals bakers, we all speak the same language and we understand each other easily thanks to the descriptions we use: toasty, dairy, acetic, etc...

Consumers express themselves in simpler terms: "a tasty bread", "a nice-tasting bread", etc. but they cannot explain why. Our communication efforts therefore focus on the bread manufacturing process: slow fermentation to develop complex aromas, addition of sourdough for typicity.

Today's consumers are seeking the "old-fashioned" bread, one that reminds them of their childhood, with a 'natural' taste. They want the product to taste good, but without being too strong in acidity. Thanks to this knowledge, we steer our process more towards breads with a dairy flavour to please a wider consumer audience.»

Flavour

Each expert descriptor is illustrated by a reference loaf.



Expert vocabulary

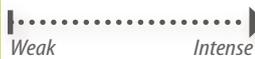
• Caramel flavour - crust



RECIPE

✓ Crust of loaf made with caramelised malt extract

• Cardboard flavour - crust



RECIPE

✓ Crust with subtle aroma obtained 6 hours after the baking

• Crackers flavour - crust



RECIPE

✓ Crust of loaf made with 10% Crème de Levain®

• Acetic/vinegar flavour - crumb



RECIPE

✓ Loaf made with highly acetic sourdough

• Almond flavour - crumb



RECIPE

✓ Loaf made with bitter almond extract

• Ripe wheat flavour - crumb



RECIPE

✓ Traditional baguette

• Cereal/bran flavour - crumb



RECIPE

✓ Loaf made with 70% wholewheat flour

• Fermented flavour - crumb



RECIPE

✓ Over-yeasted baguette - frozen dough



Consumer vocabulary

• Caramel

• Cardboard, damp cardboard, loaf crust, stale crust

• Crackers, pizza crust, baked

• Pungent, vinegar

• Almond

• Mild, wheat grain

• Cereal, seeds, corn, buckwheat, bran

• Alcoholic, mushroom taste, taste of bread, yeast, mouldy, pungent, earthy



Expert vocabulary

• Wheat flavour - crumb



RECIPE

✓ *White baguette baked in tray*

• Fruity flavour - crumb



RECIPE

✓ *Bread made with rye and added live sourdough*

• Dairy/butter flavour - crumb



RECIPE

✓ *Bread made with corn flour and 2% butter*

• Sourdough flavour - crumb



RECIPE

✓ *Bread made with lactic/acetic sourdough*

• Yeast flavour - crumb



RECIPE

✓ *Over-yeasted baguette (6% fresh yeast) - short fermentation*

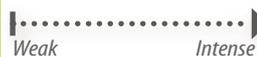
• Malty/roasted flavour - crumb



RECIPE

✓ *Bread with added malt*

• Hazelnut flavour - crumb



RECIPE

✓ *Bread made with praline*

• Rye flavour - crumb



RECIPE

✓ *Bread made with 90% T170 flour*



Consumer vocabulary

• Cereal, flour, wet flour, floury, wheat, paper

• Nutty, fermented fruit, fruity, prune

• Brioche, mild, greasy, rancid, dairy, milky

• Pungent, sourdough, yeast, metallic, distinctive, vinegar

• Alcoholic, mushroom, bread, yeast, mouldy, pungent, earthy

• Burnt, caramel, charcoal, smoky, grilled, toasty, roasted

• Squash seed, hazelnut, walnut, popcorn, sesame

• Hay, honey, gingerbread, rye

Taste



Expert vocabulary

• Acidic taste - crumb



HIGHLY ACIDIC RECIPE
✓ Bread with a pH of 3.8

• Salty taste - crumb



VERY SALTY RECIPE
✓ Bread made with 2.4% salt

• Sweet taste - crumb



VERY SWEET RECIPE
✓ Bread made with 4% sugar

• Spontaneous comments by experts



Consumer vocabulary

• Acidic, sour, acrid, bitter, pronounced/distinctive, pungent

• No salt, not enough salt
• Insipid, no/little flavour, bland, neutral

• Brioche, sweet

• Excellent, (very) nice flavour, harmonious, aromatic
• After-taste, lingering taste
• Fresh bread
• Old-fashioned, rustic, simple, craft baking, authentic/ industrial, supermarket/mass consumer bread

Illustration

Smell & Taste

Kernouaille bread

Formula

Type 65 flour	1 600 g	80.0 %
Buckwheat flour	400 g	20.0 %
TOTAL flour	2 000 g	100.0 %
Living liquid sourdough	160 g	8.0 %
Compressed yeast	20 g	1.0 %
Improver	20 g	1.0 %
Gluten	20 g	1.0 %
Water	1 200 g	60.0 %
Salt	40 g	2.0 %
TOTAL DOUGH	3 460 g	

Process

Type of mixer	Spiral	Oblique axis
Mixing	5 min slow speed + 2 min fast speed	8 min slow speed + 4 min fast speed
Dough temperature	26°C +/-1°C	
Bulk fermentation	2 x 90 min	
Scaling weight	Triangle	
Final proof	30 min at 28°C	
Baking	25 min at 235°C (with temperature decrease)	



Buckwheat & smoked aroma
Hazelnut & Hazelnut &
cereal smell **smoked aroma**
Buckwheat & cereal smell
cereal smell
Hazelnut & cereal smell



Glossary

This index contains all the terms used in this leaflet.

Expert terms are organised in alphabetic order. In the adjacent columns, the equivalent consumer terms are categorised according to whether the sensation is pleasant or unpleasant.

	Expert vocabulary	Sensory family	Consumer vocabulary	
			Pleasant	Unpleasant
A	• Acetic, vinegar	• Flavour • Smell	• Sourdough	• Acidic, sour, pungent, vinegar
	• Acidic (taste)	• Taste	• Pronounced flavour	• Acidic, sour, acrid, bitter, distinctive, pungent
	• Almond	• Flavour • Smell	• Almond	
B	• Blisters (quantity)	• Appearance of crust		• Defects, spotted appearance, craters, blisters, smooth (varying degrees), gold spikes, rough surface
C	• Caramel (crust)	• Flavour • Smell	• Caramel, biscuit, sweet	
	• Cardboard (crust)	• Flavour • Smell		• Cardboard, damp cardboard, loaf crust, stale crust, neutral
	• Cereal, bran	• Flavour • Smell	• Cereal, seeds, rye, bran, corn	• Buckwheat
	• Crackers (crust)	• Flavour • Smell	• Biscuit, crackers, pizza crust, baked	
	• Crispiness	• Sound	• Crunchy, crispy, crackers	• Soft, rubbery, moist/dry
	• Crumb cells (average size)	• Appearance of crumb	• Aerated crumb, swollen, open structure, light • Small crumb cells	• Compact, tight, dense, compressed crumb, too much crumb • Large crumb cells
	• Crumb cells (depth)	• Appearance of crumb	• Holes (small, few)	• Holes (large, many)
	• Crumb cells (regularity)	• Appearance of crumb		• Air bubbles, dense crumb, holes

	Expert vocabulary	Sensory family	Consumer vocabulary	
			Pleasant	Unpleasant
C	• Crumb colour (homogeneity)	• Appearance of crumb	• Nice colour	• Poor colour
	• Crumb colour (intensity)	• Appearance of crumb		• Lack of colour • Pale colour, light/dark
	• Crumb colour (tint)	• Appearance of crumb	• Nice colour • Cream, beige, yellow	• Poor colour • White, grey, brownish, dark brown
	• Crunchiness (crust)	• Sound	• Crunchy, crispy	• Crumbly
	• Crust colour (homogeneity)	• General appearance	• Nice colour, even colour	
	• Crust colour (tint)	• Appearance of crust	• Cream, golden	• White, pale, brown, black
	• Crust colour (intensity)	• General appearance	• Nicely browned, good baking (well baked, baked to perfection) • Pale, golden	• Poor baking (under-baked, burnt, over-baked) • Dark, black
D	• Dairy/butter	• Flavour • Smell	• Brioche, cake, mild, Danish pastry	• Milky, dairy, greasy, buttered pasta, rancid
	• Development	• General appearance	• Well risen, fully developed, well formed, springy, voluminous, round • Good size	• Flat
E	• Elastic (texture)	• Crumb texture	• Firm/soft, easily squashed, supple	• Marshmallow, chewy, rubbery, elastic, plastic
F	• Fermented	• Flavour • Smell	• Taste of bread, sourdough, yeast	• Alcoholic, mushroom, chemical, fermentation, cheese, mouldy, pungent, earthy
	• Fragmentation	• Crust texture (to the touch)	• Firmly attached to the crust	• Integrity of crumb, cracked, flaky, crumbs, split, crumbly, too many crumbs, stale
	• Fruity	• Flavour • Smell	• Fruity, nutty, dried fruits	• Lemony, fermented fruit, prune

	Expert vocabulary	Sensory family	Consumer vocabulary	
			Pleasant	Unpleasant
G	<ul style="list-style-type: none"> Gummy (texture) 	<ul style="list-style-type: none"> Crumb texture (in mouth) 		<ul style="list-style-type: none"> Floury, grainy, gritty, fibrous/ spongy, gelatinous, viscous Compact, dense, heavy, gummy
H	<ul style="list-style-type: none"> Hazelnut 	<ul style="list-style-type: none"> Flavour Smell 	<ul style="list-style-type: none"> Hazelnut, walnut, popcorn, sesame 	<ul style="list-style-type: none"> Almond, squash seed
I	<ul style="list-style-type: none"> Inclusions (presence) 	<ul style="list-style-type: none"> Appearance of crumb 	<ul style="list-style-type: none"> "Wholemeal loaf" type crumb 	<ul style="list-style-type: none"> Speckled, spotted
M	<ul style="list-style-type: none"> Malty/roasted 	<ul style="list-style-type: none"> Flavour Smell 	<ul style="list-style-type: none"> Caramel, bread crust, grilled bread, toasty 	<ul style="list-style-type: none"> Coffee, mushroom, charcoal, woody, burnt, wood fire, forest, smoky, grilled, malty, musty, roasted
	<ul style="list-style-type: none"> Melt-in-the-mouth/absorption 	<ul style="list-style-type: none"> Crumb texture (in mouth) 	<ul style="list-style-type: none"> Melt-in-the-mouth, chewy, creamy, covering, soft, disintegrates quickly 	<ul style="list-style-type: none"> Rough
	<ul style="list-style-type: none"> Moistness of crumb 	<ul style="list-style-type: none"> Crumb texture (to the touch) 	<ul style="list-style-type: none"> Easy to digest, fresh, fresh bread, soft, humid 	<ul style="list-style-type: none"> Filling, brittle, dense, makes you thirsty, hard, crumbly, stuffing, heavy, dry Cold, moist
R	<ul style="list-style-type: none"> Regularity of loaf shape 	<ul style="list-style-type: none"> General appearance 	<ul style="list-style-type: none"> Nice looking, good shape, nice presentation Straight (varying degrees) 	
	<ul style="list-style-type: none"> Resistance to bite 	<ul style="list-style-type: none"> Crust texture (in mouth) 	<ul style="list-style-type: none"> Elastic, firm, soft, supple 	<ul style="list-style-type: none"> Compact, rubbery, hard to chew, "painful on gums", rough, chewy, sharp
	<ul style="list-style-type: none"> Resistance to tearing 	<ul style="list-style-type: none"> Crust texture (to the touch) 	<ul style="list-style-type: none"> Easy to tear in two, breaks easily, soft, not hard, supple 	<ul style="list-style-type: none"> Like cardboard, brittle, hard, difficult to tear in two, rigid
	<ul style="list-style-type: none"> Ripe wheat 	<ul style="list-style-type: none"> Flavour Smell 	<ul style="list-style-type: none"> Mild, wheat grain, dough, pancake batter, waffle batter, sweet 	
	<ul style="list-style-type: none"> Rye 	<ul style="list-style-type: none"> Flavour Smell 	<ul style="list-style-type: none"> Honey, gingerbread, rye 	<ul style="list-style-type: none"> Spicy, hay

	Expert vocabulary	Sensory family	Consumer vocabulary	
			Pleasant	Unpleasant
S	• Salty (taste)	• Taste		• No salt, not enough salt • Insipid, no/little taste, neutral, bland
	• Scarring	• General appearance	• Craft baking/traditional	• Industrial looking
	• Shiny (appearance)	• Appearance of crust	• Shiny	• Greasy/Dull
	• Shiny (appearance)	• Appearance of crumb		• Dry/sticky, under-baked
	• Sourdough	• Flavour • Smell	• Sourdough, yeasty	• Acidic, sour, metallic, pungent, distinctive, vinegar
	• Sticky (texture)	• Crumb texture (in mouth)		• Rubbery, chewing gum • Sticky, glue-like, tacky
	• Sweet (taste)	• Taste	• Brioche, sweet	
T	• Thickness of crust	• Appearance of crust	• Thin/thick (varying degrees)	• Thin/thick (varying degrees)
U	• Uniformity of cross section	• General appearance	• Good shape, wide	• Flat
W	• Wheat	• Flavour • Smell	• Cereal flour, floury, wheat	• Cardboard, neutral, paper, wet flour
Y	• Yeast	• Flavour • Smell	• Sourdough, yeast, bread	• Chemical, fermentation, mouldy, earthy, mushroom, cheese, pungent, alcoholic