

# Brewers yeast, dried

Dried byproduct of brewery, consisting of yeast (*Saccharomyces cerevisiae*) remaining in the fermentation vats of malt wort after removal of the fermented liquid. It is generally sold in dried form.



## Values

Averages as fed / on DM / other unit    Min/max as fed    Min/max on DM    Min/Max other unit

### Main constituents

Parameter	As fed	On DM	Unit	Other	Unit
<u>Dry matter</u>	92.8	100	%	-	
<u>Crude protein</u>	44.2	47.6	%	-	
<u>Crude fibre</u>	1.9	2.1	%	-	
<u>Crude fat, hydrolysis</u>	3.8	4	%	-	
<u>Ash</u>	6.5	7	%	-	
<u>Insoluble ash</u>	0.5	0.6	%	-	
<u>NDF</u>	8.1	8.8	%	-	
<u>ADF</u>	2.3	2.5	%	-	
<u>Lignin</u>	0.7	0.7	%	-	
<u>Starch</u>	0.9	1	%	-	
<u>Total sugars</u>	1.7	1.9	%	-	
<u>Gross energy_(kcal)</u>	4400	4740	kcal/kg	-	
<u>Gross energy_(MJ)</u>	18.4	19.8	MJ/kg	-	

### Mineral elements

Parameter	As fed	On DM	Unit	Other	Unit
<u>Calcium</u>	2.8	3	g/kg	-	
<u>Phosphorus</u>	12.5	13.5	g/kg	-	
<u>Phytate phosphorus</u>	0	0	g/kg	0	% P
<u>Magnesium</u>	2.2	2.4	g/kg	-	
<u>Potassium</u>	20.5	22	g/kg	-	
<u>Sodium</u>	1.68	1.81	g/kg	-	

Parameter	As fed	On DM	Unit	Other	Unit
<u>Chlorine</u>	3.5	3.7	g/kg	-	
<u>Sulfur</u>	4.2	4.6	g/kg	-	
<u>Dietary cation-anion difference</u>	235	253	mEq/kg	-	
<u>Electrolyte balance</u>	500	538	mEq/kg	-	
<u>Manganese</u>	31	34	mg/kg	-	
<u>Zinc</u>	96	103	mg/kg	-	
<u>Copper</u>	19	20	mg/kg	-	
<u>Iron</u>	87	94	mg/kg	-	
<u>Selenium</u>	0.06	0.06	mg/kg	-	
<u>Cobalt</u>	0.5	0.6	mg/kg	-	
<u>Molybdenum</u>	1	1	mg/kg	-	
<u>Iodine</u>	1	1	mg/kg	-	

## Fatty acids

Parameter	As fed	On DM	Unit	Other	Unit
<u>Fatty acids</u>	3	3.2	g/kg	80	% fat

## Vitamins and pigments

Parameter	As fed	On DM	Unit	Other	Unit
<u>Vitamin E</u>	2	2	mg/kg	-	
<u>Vitamin B1 thiamin</u>	85	92	mg/kg	-	
<u>Vitamin B2 riboflavin</u>	39	43	mg/kg	-	
<u>Vitamin B6 pyridoxine</u>	33	36	mg/kg	-	
<u>Vitamin B12</u>	7	8	µg/kg	-	
<u>Niacin</u>	445	480	mg/kg	-	
<u>Pantothenic acid</u>	110	119	mg/kg	-	
<u>Folic acid</u>	10	11	mg/kg	-	
<u>Biotin</u>	1	1	mg/kg	-	
<u>Choline</u>	3316	3574	mg/kg	-	

## Ruminants

Parameter	As fed	On DM	Unit	Other	Unit
<u>UFL INRA 2018</u>	1.09	1.18	per kg	-	
<u>UFV INRA 2018</u>	1.09	1.17	per kg	-	

Parameter	As fed	On DM	Unit	Other	Unit
<u>PDIA Systali</u>	81	87	g/kg	-	-
<u>PDI INRA 2018</u>	133	143	g/kg	-	-
<u>Rumen protein balance INRA 2018</u>	258	278	g/kg	-	-
<u>Fill Unit ruminants INRA 2018</u>	0.138	0.148	per kg	-	-
<u>ME ruminants INRA 2018 (kcal)</u>	2920	3150	kcal/kg	-	-
<u>NE lactation ruminants INRA 2018 (kcal)</u>	1930	2070	kcal/kg	-	-
<u>NE meat production ruminants INRA 2018 (kcal)</u>	1910	2060	kcal/kg	-	-
<u>ME ruminants INRA 2018 (MJ)</u>	12.2	13.2	MJ/kg	-	-
<u>NE lactation ruminants INRA 2018 (MJ)</u>	8.1	8.7	MJ/kg	-	-
<u>NE meat production ruminants INRA 2018 (MJ)</u>	8	8.6	MJ/kg	-	-
<u>OM digestibility ruminants INRA 2018</u>			-	83.6	%
<u>Energy digestibility ruminants INRA 2018</u>			-	83.7	%
<u>N degradability ruminants INRA 2018</u>			-	80	%
<u>DM degradability ruminants INRA 2018</u>			-	77	%
<u>Starch degradability ruminants INRA 2018</u>			-	82	%
<u>Lysine ruminants INRA 2018</u>			-	7.4	% PDI
<u>Threonine ruminants INRA 2018</u>			-	5.2	% PDI
<u>Methionine ruminants INRA 2018</u>			-	1.9	% PDI
<u>Isoleucine ruminants INRA 2018</u>			-	5.1	% PDI
<u>Valine ruminants INRA 2018</u>			-	5.5	% PDI
<u>Leucine ruminants INRA 2018</u>			-	7.9	% PDI
<u>Phenylalanine ruminants INRA 2018</u>			-	4.6	% PDI
<u>Histidine ruminants INRA 2018</u>			-	2.2	% PDI
<u>Arginine ruminants INRA 2018</u>			-	4.8	% PDI
<u>UFL FL1 INRA 2018</u>	1.12	1.2	per kg	-	-
<u>UFV FL1 INRA 2018</u>	1.11	1.2	per kg	-	-
<u>PDIA FL1 INRA 2018</u>	70	76	g/kg	-	-
<u>PDI FL1 INRA 2018</u>	124	134	g/kg	-	-
<u>Rumen protein balance FL1 INRA 2018</u>	267	288	g/kg	-	-
<u>UFL FL4 INRA 2018</u>	1.05	1.13	per kg	-	-
<u>UFV FL4 INRA 2018</u>	1.03	1.11	per kg	-	-
<u>PDIA FL4 INRA 2018</u>	98	105	g/kg	-	-

Parameter	As fed	On DM	Unit	Other	Unit
<u>PDI FL4 INRA 2018</u>	149	160	g/kg	-	-
<u>Rumen protein balance FL4 INRA 2018</u>	240	259	g/kg	-	-
<u>UFL INRA 2007</u>	1.04	1.13	per kg	-	-
<u>UFV INRA 2007</u>	1.02	1.1	per kg	-	-
<u>PDIA INRA 2007</u>	71	76	g/kg	-	-
<u>PDIN INRA 2007</u>	280	302	g/kg	-	-
<u>PDIE INRA 2007</u>	129	139	g/kg	-	-
<u>ME ruminants INRA 2007 (kcal)</u>	2850	3070	kcal/kg	-	-
<u>ME ruminants INRA 2007 (MJ)</u>	11.9	12.9	MJ/kg	-	-
<u>OM digestibility ruminants INRA 2007</u>			-	85	%
<u>Energy digestibility ruminants INRA 2007</u>			-	85.1	%
<u>N digestibility ruminants</u>			-	78.5	%
<u>N digestibility, intestinal, ruminants</u>			-	90	%
<u>NDF digestibility ruminants</u>			-	68	%
<u>N degradability ruminants (k=0.06)</u>			-	84	%
<u>Immediately degradable N (a)</u>			-	64	%
<u>Potentially degradable N (b)</u>			-	29	%
<u>Degradation rate of particles N (c)</u>			-	0.14	h-1
<u>Starch degradability, ruminants (k=0.06)</u>			-	80	%
<u>DM degradability ruminants (k=0.06)</u>			-	81	%
<u>Immediately degradable DM (a)</u>			-	60	%
<u>Potentially degradable DM (b)</u>			-	34	%
<u>Degradation rate of particles DM (c)</u>			-	0.095	h-1
<u>Absorbable Ca ruminants</u>	1.5	1.6	g/kg	55	% Ca
<u>Lysine ruminants INRA 2007</u>			-	7.5	% PDIE
<u>Threonine ruminants INRA 2007</u>			-	5.3	% PDIE
<u>Methionine ruminants INRA 2007</u>			-	1.8	% PDIE
<u>Isoleucine ruminants INRA 2007</u>			-	5.4	% PDIE
<u>Valine ruminants INRA 2007</u>			-	5.8	% PDIE

Parameter	As fed	On DM	Unit	Other	Unit
<u>Leucine ruminants INRA 2007</u>			-	8	% PDIE
<u>Phenylalanine ruminants INRA 2007</u>			-	4.6	% PDIE
<u>Histidine ruminants INRA 2007</u>			-	2.1	% PDIE
<u>Arginine ruminants INRA 2007</u>			-	4.8	% PDIE

## Pigs

Parameter	As fed	On DM	Unit	Other	Unit
<u>DE growing.pig.(kcal).</u>	3740	4030	kcal/kg	-	
<u>ME growing.pig.(kcal).</u>	3420	3690	kcal/kg	-	
<u>NE growing.pig.(kcal).</u>	2150	2320	kcal/kg	-	
<u>DE adult.pig.(kcal).</u>	3820	4120	kcal/kg	-	
<u>ME adult.pig.(kcal).</u>	3450	3720	kcal/kg	-	
<u>NE adult.pig.(kcal).</u>	2220	2390	kcal/kg	-	
<u>DE growing.pig.(MJ).</u>	15.6	16.9	MJ/kg	-	
<u>ME growing.pig.(MJ).</u>	14.3	15.4	MJ/kg	-	
<u>NE growing.pig.(MJ).</u>	9	9.7	MJ/kg	-	
<u>DE adult.pig.(MJ).</u>	16	17.3	MJ/kg	-	
<u>ME adult.pig.(MJ).</u>	14.4	15.6	MJ/kg	-	
<u>NE adult.pig.(MJ).</u>	9.3	10	MJ/kg	-	
<u>Energy digestibility_growing.pig</u>			-	85	%
<u>Energy digestibility_adult.pig</u>			-	87	%
<u>OM digestibility_growing.pig</u>			-	86	%
<u>OM digestibility_adult.pig</u>			-	88	%
<u>N digestibility_growing.pig</u>			-	85	%
<u>N digestibility_adult.pig</u>			-	86.2	%
<u>N digestibility_ileal standardised.pig</u>			-	69	%
<u>Crude fat digestibility.pig</u>			-	80	%

## Poultry

Parameter	As fed	On DM	Unit	Other	Unit
<u>AMEn cockerel (kcal).</u>	2930	3150	kcal/kg	-	

Parameter	As fed	On DM	Unit	Other	Unit
<u>AMEn broiler (kcal)</u>	2930	3150	kcal/kg	-	
<u>AMEn cockerel (MJ)</u>	12.2	13.2	MJ/kg	-	
<u>AMEn broiler (MJ)</u>	12.2	13.2	MJ/kg	-	

## Fish

Parameter	As fed	On DM	Unit	Other	Unit
<u>DE salmonids (kcal)</u>	3170	3420	kcal/kg	-	
<u>DE salmonids (MJ)</u>	13.3	14.3	MJ/kg	-	
<u>Energy digestibility, salmonids</u>				-	72.1 %
<u>N digestibility salmonids</u>				-	81.7 %

## Amino acids

Parameter	As fed	On DM	Unit	Other	Unit
<u>Lysine</u>	27.1	29.2	g/kg	6.1	g/16g N
<u>Threonine</u>	19.1	20.6	g/kg	4.3	g/16g N
<u>Methionine</u>	6.6	7.1	g/kg	1.5	g/16g N
<u>Cystine</u>	2.8	3	g/kg	0.6	g/16g N
<u>Methionine + cystine</u>	9.4	10.1	g/kg	2.1	g/16g N
<u>Tryptophan</u>	4.6	5	g/kg	1.1	g/16g N
<u>Isoleucine</u>	18.9	20.4	g/kg	4.3	g/16g N
<u>Valine</u>	20.9	22.5	g/kg	4.7	g/16g N
<u>Leucine</u>	26.3	28.3	g/kg	5.9	g/16g N
<u>Phenylalanine</u>	15.3	16.5	g/kg	3.5	g/16g N
<u>Tyrosine</u>	11.8	12.7	g/kg	2.7	g/16g N
<u>Phenylalanine + tyrosine</u>	27.1	29.2	g/kg	6.1	g/16g N
<u>Histidine</u>	9.3	10	g/kg	2.1	g/16g N
<u>Arginine</u>	19.6	21.1	g/kg	4.4	g/16g N
<u>Alanine</u>	28.6	30.8	g/kg	6.5	g/16g N
<u>Aspartic acid</u>	35	37.7	g/kg	7.9	g/16g N
<u>Glutamic acid</u>	63.1	68	g/kg	14.3	g/16g N
<u>Glycine</u>	17	18.3	g/kg	3.8	g/16g N
<u>Serine</u>	18.4	19.8	g/kg	4.2	g/16g N
<u>Proline</u>	39.3	42.4	g/kg	8.9	g/16g N

## Pigs, amino acids

Parameter	As fed	On DM	Unit	Other	Unit
<u>Lysine, ileal standardised, pig</u>	20.1	21.6	g/kg	74	%
<u>Threonine, ileal standardised, pig</u>	12.7	13.6	g/kg	66	%
<u>Methionine, ileal standardised, pig</u>	4.6	5	g/kg	69	%
<u>Cystine, ileal standardised, pig</u>	1.4	1.5	g/kg	49	%
<u>Methionine + cystine, ileal standardised, pig</u>	6	6.4	g/kg	63	%
<u>Tryptophan, ileal standardised, pig</u>	2.5	2.7	g/kg	55	%
<u>Isoleucine, ileal standardised, pig</u>	13.7	14.7	g/kg	72	%
<u>Valine, ileal standardised, pig</u>	13.9	14.9	g/kg	66	%
<u>Leucine, ileal standardised, pig</u>	19.1	20.6	g/kg	73	%
<u>Phenylalanine, ileal standardised, pig</u>	10.1	10.9	g/kg	66	%
<u>Tyrosine, ileal standardised, pig</u>	7.5	8.1	g/kg	64	%
<u>Phenylalanine + tyrosine, ileal standardised, pig</u>	17.7	19	g/kg	65	%
<u>Histidine, ileal standardised, pig</u>	7.1	7.7	g/kg	77	%
<u>Arginine, ileal standardised, pig</u>	15.3	16.5	g/kg	78	%
<u>Alanine, ileal standardised, pig</u>	21	22.7	g/kg	74	%
<u>Aspartic acid, ileal standardised, pig</u>	26.3	28.4	g/kg	75	%
<u>Glutamic acid, ileal standardised, pig</u>	48.3	52.1	g/kg	77	%
<u>Glycine, ileal standardised, pig</u>	11.4	12.3	g/kg	67	%
<u>Serine, ileal standardised, pig</u>	12.7	13.7	g/kg	69	%

## Poultry, amino acids

Parameter	As fed	On DM	Unit	Other	Unit
<u>Lysine, ileal standardized, poultry</u>	24.3	26.2	g/kg	90	%
<u>Threonine, ileal standardized, poultry</u>	15.5	16.7	g/kg	81	%
<u>Methionine, ileal standardized, poultry</u>	5.6	6	g/kg	84	%
<u>Cystine, ileal standardized, poultry</u>	2.2	2.4	g/kg	80	%
<u>Methionine + cystine, ileal standardized, poultry</u>	7.8	8.4	g/kg	83	%
<u>Tryptophan, ileal standardized, poultry</u>	4	4.3	g/kg	86	%
<u>Isoleucine, ileal standardized, poultry</u>	16.1	17.3	g/kg	85	%
<u>Valine, ileal standardized, poultry</u>	17.6	18.9	g/kg	84	%
<u>Leucine, ileal standardized, poultry</u>	22.3	24.1	g/kg	85	%
<u>Phenylalanine, ileal standardized, poultry</u>	13.2	14.2	g/kg	86	%
<u>Tyrosine, ileal standardized, poultry</u>	10.2	11	g/kg	87	%
<u>Phenylalanine + tyrosine, ileal standardized, poultry</u>	23.4	25.2	g/kg	86	%

Parameter	As fed	On DM	Unit	Other	Unit
<u>Histidine, ileal standardized, poultry.</u>	7.6	8.2	g/kg	82	%
<u>Arginine, ileal standardized, poultry.</u>	17.2	18.6	g/kg	88	%
<u>Alanine, ileal standardized, poultry.</u>	25.1	27.1	g/kg	88	%
<u>Aspartic acid, ileal standardized, poultry.</u>	29.8	32.1	g/kg	85	%
<u>Glutamic acid, ileal standardized, poultry.</u>	55.5	59.8	g/kg	88	%
<u>Glycine, ileal standardized, poultry.</u>	14.4	15.6	g/kg	85	%
<u>Serine, ileal standardized, poultry.</u>	15.1	16.3	g/kg	82	%
<u>Proline, ileal standardized, poultry.</u>	33.4	36	g/kg	85	%