

## Properties of Commercially Pin Milled Red Lentil<sup>1</sup> Flours

Flour Properties <sup>2,3</sup>	Split Flour		Whole Flour	
	Fine	Coarse	Fine	Coarse
<b>Granulation:</b>				
<b>Special Crops Code:</b>	SC217-12	SC215-12	SC218-12	SC216-12
<b>Particle Size Distribution:</b>				
d (0.1) µm	2.7 ± 0.02 <sup>c</sup>	7.3 ± 0.13 <sup>b</sup>	2.5 ± 0.01 <sup>c</sup>	9.4 ± 0.34 <sup>a</sup>
d (0.5) µm	12.9 ± 0.44 <sup>c</sup>	56.3 ± 5.81 <sup>b</sup>	12.7 ± 0.09 <sup>c</sup>	138.7 ± 9.65 <sup>a</sup>
d (0.9) µm	33.5 ± 2.60 <sup>c</sup>	327.7 ± 1.97 <sup>b</sup>	45.2 ± 7.24 <sup>c</sup>	928.2 ± 101.01 <sup>a</sup>
Volume Weighted Mean, µm	24.0 ± 4.45 <sup>c</sup>	126.1 ± 1.97 <sup>b</sup>	25.8 ± 2.04 <sup>c</sup>	298.2 ± 26.51 <sup>a</sup>
<b>Composition<sup>4</sup>:</b>				
Protein, %	27.7 ± 0.03 <sup>c</sup>	29.1 ± 0.02 <sup>a</sup>	27.6 ± 0.00 <sup>c</sup>	28.1 ± 0.01 <sup>b</sup>
Total Starch, %	53.0 ± 0.45 <sup>a</sup>	50.6 ± 0.01 <sup>b</sup>	46.5 ± 0.10 <sup>c</sup>	44.1 ± 0.24 <sup>d</sup>
Total Dietary Fibre, %	6.1	6.6	12.1	13.1
Soluble Fibre, %	0.7	0.8	1.5	1.8
Insoluble Fibre, %	5.3	5.8	10.7	11.2
<b>Pasting Properties:</b>				
Peak Viscosity, RVU	186	173	98	121
Hot Paste Viscosity, RVU	147	150	91	117
Breakdown, RVU	39	23	6	5
Final Viscosity, RVU	273	280	156	192
Setback, RVU	124	129	65	76
Pasting Time, min	5.12	5.18	5.45	5.25
<b>Functional Properties:</b>				
Starch Damage, %	3.78 ± 0.10 <sup>b</sup>	1.59 ± 0.01 <sup>c</sup>	6.57 ± 0.16 <sup>a</sup>	1.57 ± 0.02 <sup>c</sup>
Water Absorption Capacity, g/g	0.94 ± 0.01 <sup>c</sup>	0.95 ± 0.01 <sup>c</sup>	1.35 ± 0.02 <sup>a</sup>	1.27 ± 0.01 <sup>b</sup>
Oil Absorption Capacity, g/g	0.83 ± 0.01 <sup>a</sup>	0.84 ± 0.01 <sup>a</sup>	0.84 ± 0.00 <sup>a</sup>	0.86 ± 0.00 <sup>a</sup>
Foam Stability, % 10 min	93.2 ± 0.99 <sup>a</sup>	87.7 ± 6.15 <sup>a</sup>	90.6 ± 1.06 <sup>a</sup>	92.4 ± 1.77 <sup>a</sup>
30 min	76.9 ± 2.69 <sup>a</sup>	80.9 ± 4.39 <sup>a</sup>	84.2 ± 0.78 <sup>a</sup>	78.2 ± 3.75 <sup>a</sup>
60 min	71.4 ± 1.91 <sup>a</sup>	69.9 ± 8.56 <sup>a</sup>	84.6 ± 15.70 <sup>a</sup>	66.2 ± 5.66 <sup>a</sup>
120 min	62.1 ± 6.51 <sup>a</sup>	63.8 ± 11.60 <sup>a</sup>	64.2 ± 1.34 <sup>a</sup>	57.5 ± 8.98 <sup>a</sup>
Foam Capacity, %	24.0 ± 8.49 <sup>ab</sup>	14.0 ± 2.83 <sup>b</sup>	34.0 ± 2.83 <sup>a</sup>	32.0 ± 2.83 <sup>ab</sup>
Emulsifying Activity, %	36.7 ± 3.32 <sup>a</sup>	41.5 ± 2.55 <sup>a</sup>	40.2 ± 1.56 <sup>a</sup>	38.1 ± 0.78 <sup>a</sup>
Emulsifying Stability, %	15.0 ± 6.15 <sup>a</sup>	28.7 ± 15.13 <sup>a</sup>	13.7 ± 5.73 <sup>a</sup>	26.3 ± 9.12 <sup>a</sup>
<b>Colour:</b>				
L*	70.2 ± 0.01 <sup>b</sup>	70.9 ± 0.00 <sup>a</sup>	63.5 ± 0.01 <sup>c</sup>	60.1 ± 0.01 <sup>d</sup>
a*	16.38 ± 0.02 <sup>b</sup>	16.65 ± 0.00 <sup>a</sup>	6.39 ± 0.01 <sup>d</sup>	6.92 ± 0.00 <sup>c</sup>
b*	30.4 ± 0.01 <sup>b</sup>	31.1 ± 0.01 <sup>a</sup>	21.8 ± 0.01 <sup>c</sup>	20.9 ± 0.00 <sup>d</sup>

<sup>1</sup> Whole seed variety: CDC Maxim; Split seed variety: unknown.

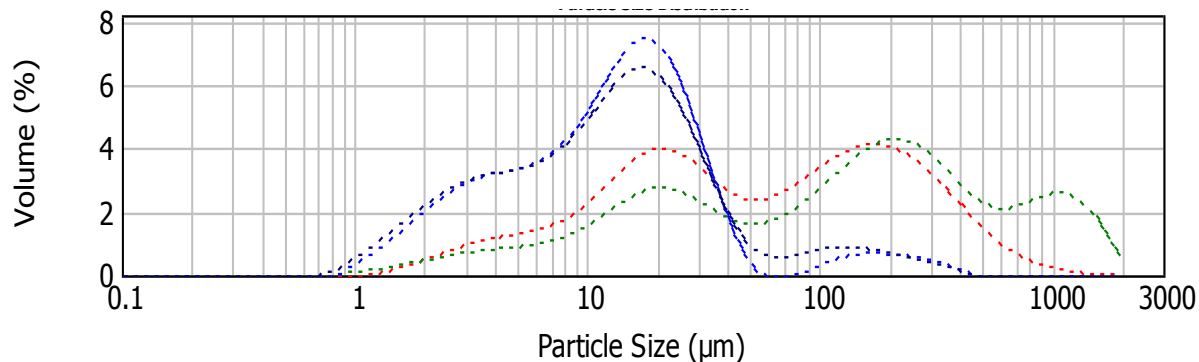
<sup>2</sup> For explanation of testing methodology refer to Glossary of Analytical Terminology.

<sup>3</sup> Values with the same letter within a row are not significantly different (p < 0.05). Significant differences for fibre and pasting properties not established.

<sup>4</sup> Dry weight basis.



## Particle Size Distribution Curves for Commercially Pin Milled Red Lentil Flours



- Split Red Lentil Flour- Coarse
- Whole Red Lentil Flour- Coarse
- Split Red Lentil Flour- Fine
- Whole Red Lentil Flour- Fine

### CONTACT US

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