



Flour quality & options for bad flour

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Theory

Outline of possible tests

Kneading

- Farinograph
- Mixolab

Extension

- Alveolab
- Extensograph

Starch

- Amylograph
- MVAG
- Falling Number
- Damaged starch

Gluten

- Gluten Index
- Sedimentation

Flour components

- Ash
- Moisture
- Protein

Farinograph

- Mixing behaviour
- Water absorption
- Dough development time
- Stability
- Softening



Principle

Farinograph



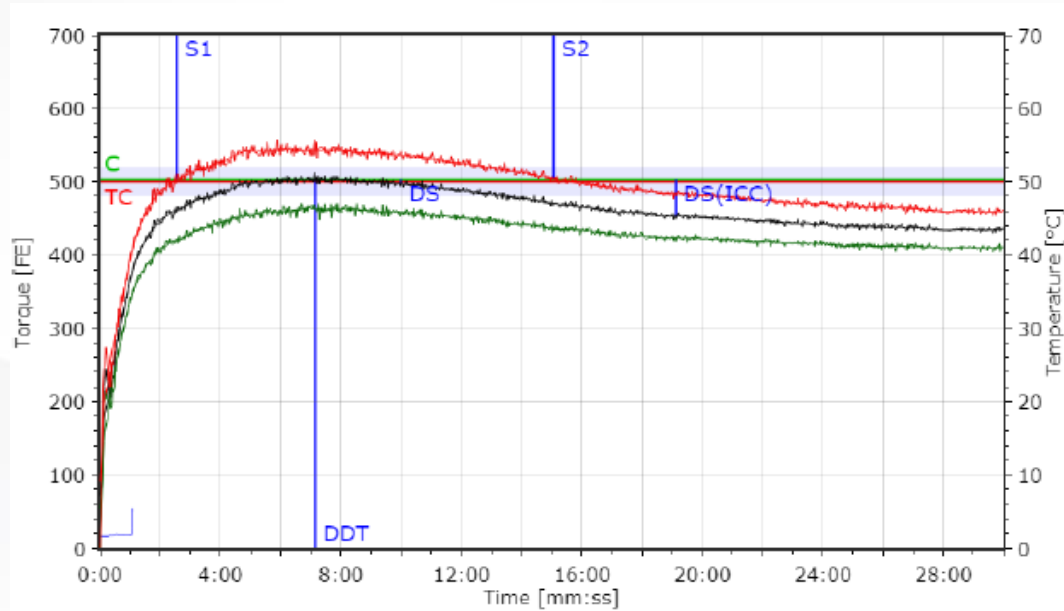
300 g



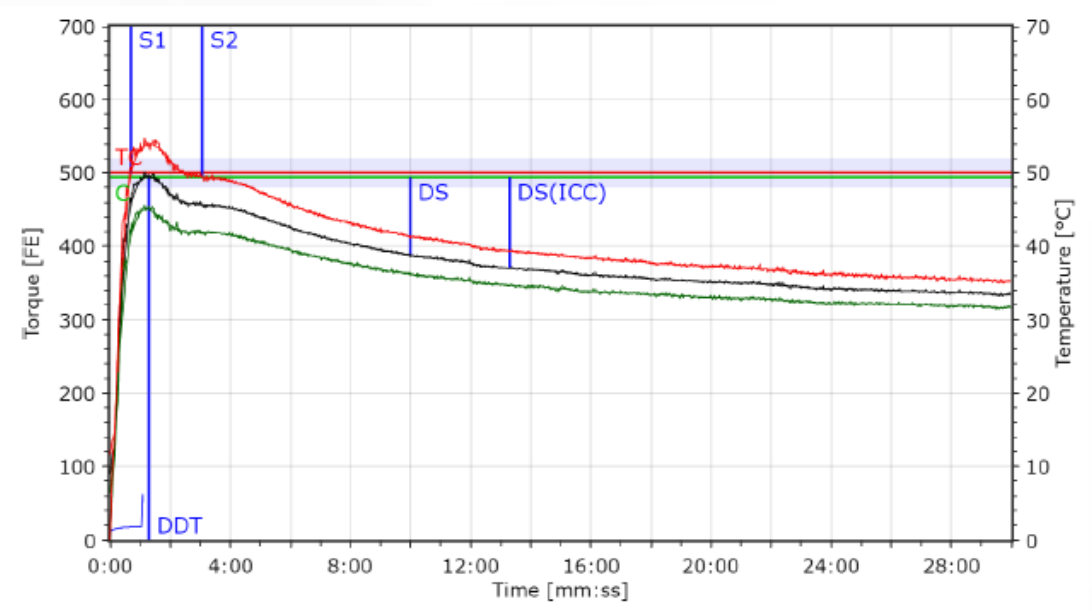
Optimum
consistency

Interpreting the curve

Farinograph



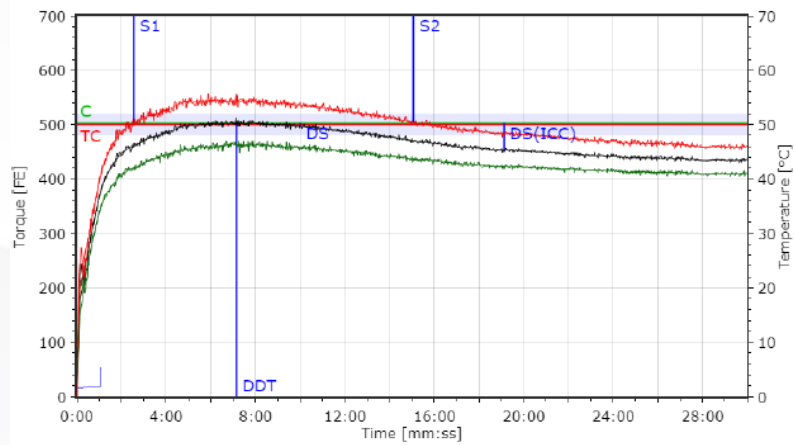
CWRS



CESRW

Interpreting the curve

Farinograph



	Low	Normal	High
Water absorption (%)	<54	56	>60
Dough Development Time (min)	<1.5	1.5-5	>5
Stability (min)	<3	5-7	>10
Softening (BU)	<30	30-70	>70

Gluten Index



Principle

Gluten Index

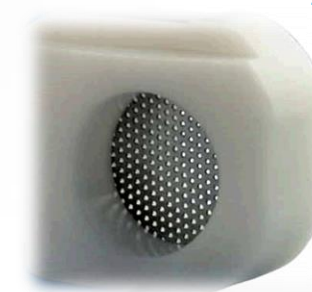


Interpreting the curve

Gluten Index



Wheat flour
90 - 95



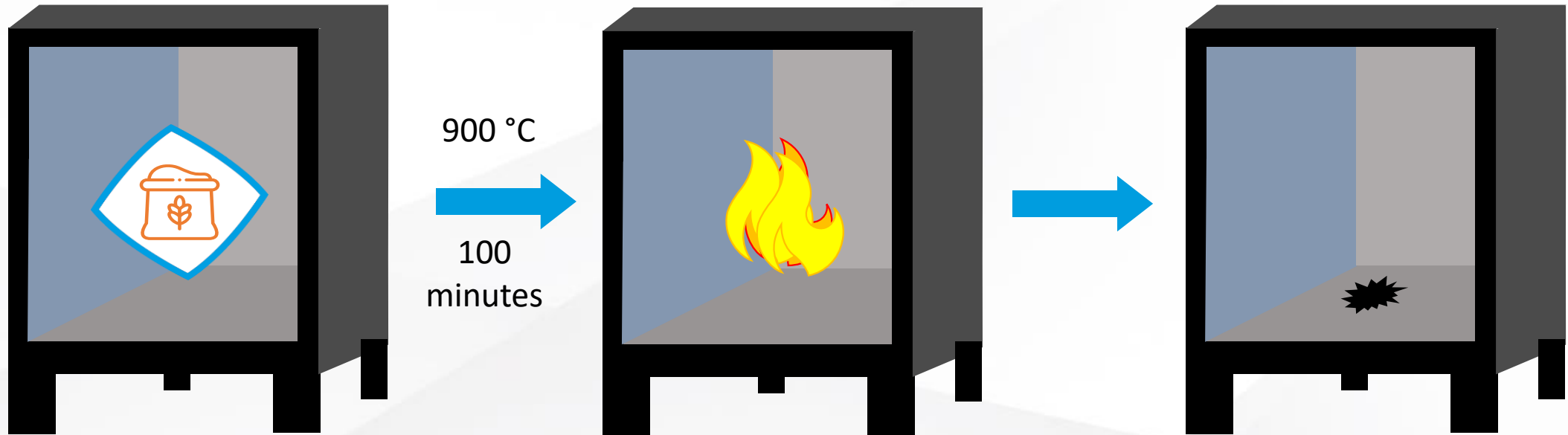
Sieve

Ash



Principle

Ash



Flour around the world

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Flour 2024 - 2025

Global Summary

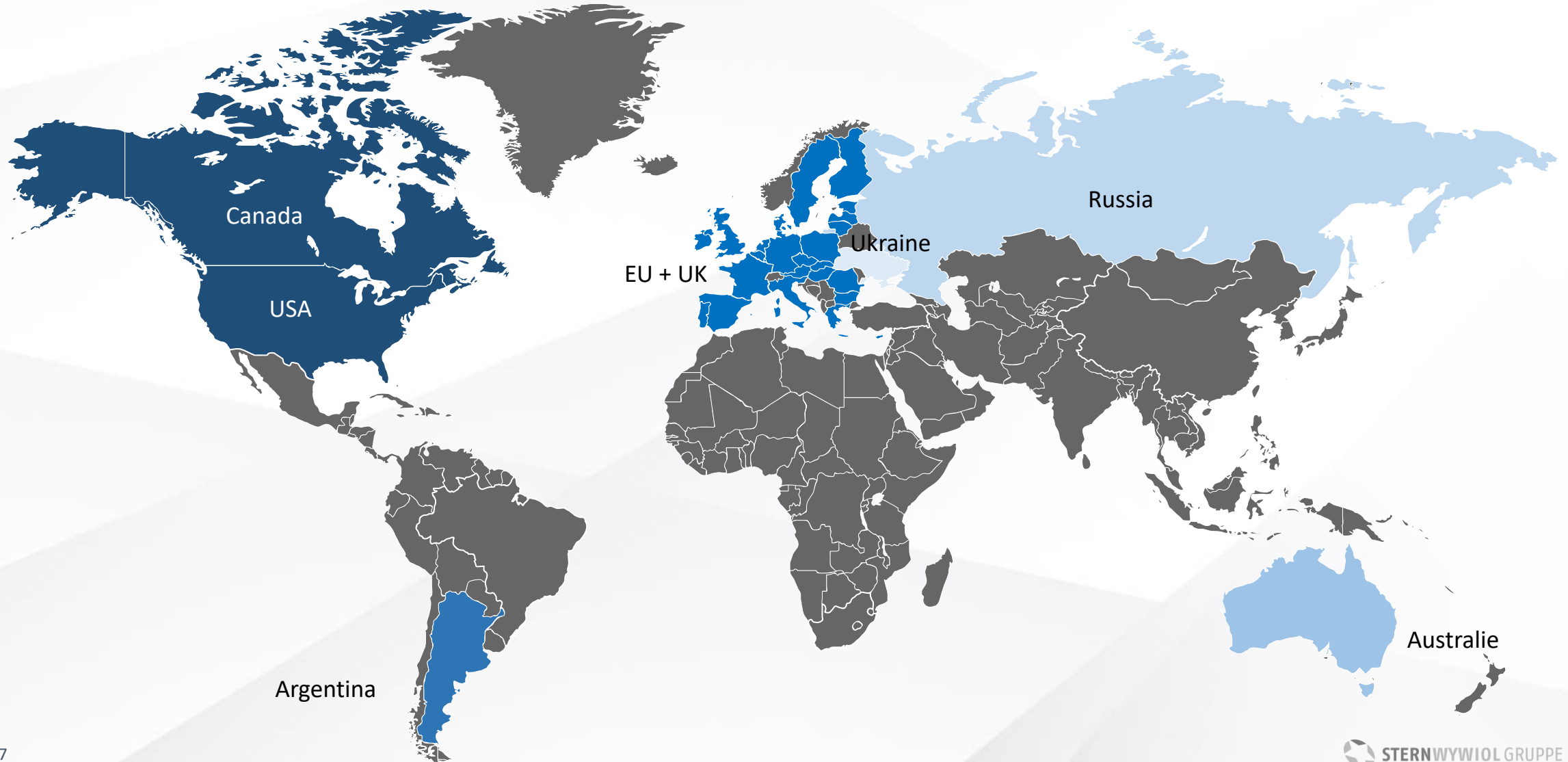
- **USDA (September 2025): Global production → 816.2 million tons**
 - Increase in production vs. 2024/2025: 15.3%
 - Global exports: 214 million tons

- **France production → 33.2 million tons**
 - Increase in production vs. 2024/2025: 29%
 - France exports: 8.3 million tons

- **Europe production → 140.1 million tons**
 - Increase in production vs. 2024/2025: 18%
 - Europe exports: 32.5 million tons (+17%)

Secondary source: Wheat Quality Survey Harvest 2025 | AIT
Ingredients
EQB – AIT Ingredients (ait-ingredients.com)

The main exporting countries



Wheat harvest analyses 2024/2025 versus 2025/2026

French wheat

Wheat Type	French 2025	French 2024
Moisture - wheat (%)	11.9	13.2
Test Weight	80.7	78.3
Thousand Kernel Weight (dry matter)	36.8	33.4
<u>Protein - Wheat (%)</u>	<u>11.5</u>	<u>11.3</u>
Falling Number - Wheat (s)	375	383
Wet Gluten - Wheat	22.0	21.4
Gluten Index - Wheat	88.3	90.3
Ash - Wheat (%)	1.5	1.6
Moisture - Flour (%)	14.1	14.0
Protein - Flour (%)	10.7	10.6
Falling Number - Flour (s)	374	379
Wet Gluten - Flour	22.2	21.7
<u>Gluten Index - Flour</u>	<u>97.2</u>	<u>97.1</u>

► Decrease in wheat moisture → To be checked with wheat conditioning time

► Gain in TW and TKW → Good milling yield and grain uniformity

► Other values are almost similar

Wheat harvest analyses 2024/2025 versus 2025/2026

Russian wheat

Wheat Type	Russian 2025	Russian 2024
Moisture - wheat (%)	12.2	11.9
Test Weight	79.2	81.5
Thousand Kernel Weight (dry matter)	35.4	34.7
<u>Protein - Wheat (%)</u>	<u>12.7</u>	<u>12.3</u>
Falling Number - Wheat (s)	361	331
Wet Gluten - Wheat	25.4	23.7
Gluten Index - Wheat	82.5	85.3
Ash - Wheat (%)	1.5	1.6
Moisture - Flour (%)	14.0	13.8
Protein - Flour (%)	11.7	11.5
Falling Number - Flour (s)	369	335
Wet Gluten - Flour	26.2	25.9
<u>Gluten Index - Flour</u>	<u>96.0</u>	<u>95.5</u>

- Slightly higher moisture content in wheat
- Decrease in TW but slight increase in TKW
→ possible irregular grain sizes
- Slight increase in protein with a small rise in wet gluten and gluten index
- Slight increase in falling number

Flour quality around the world

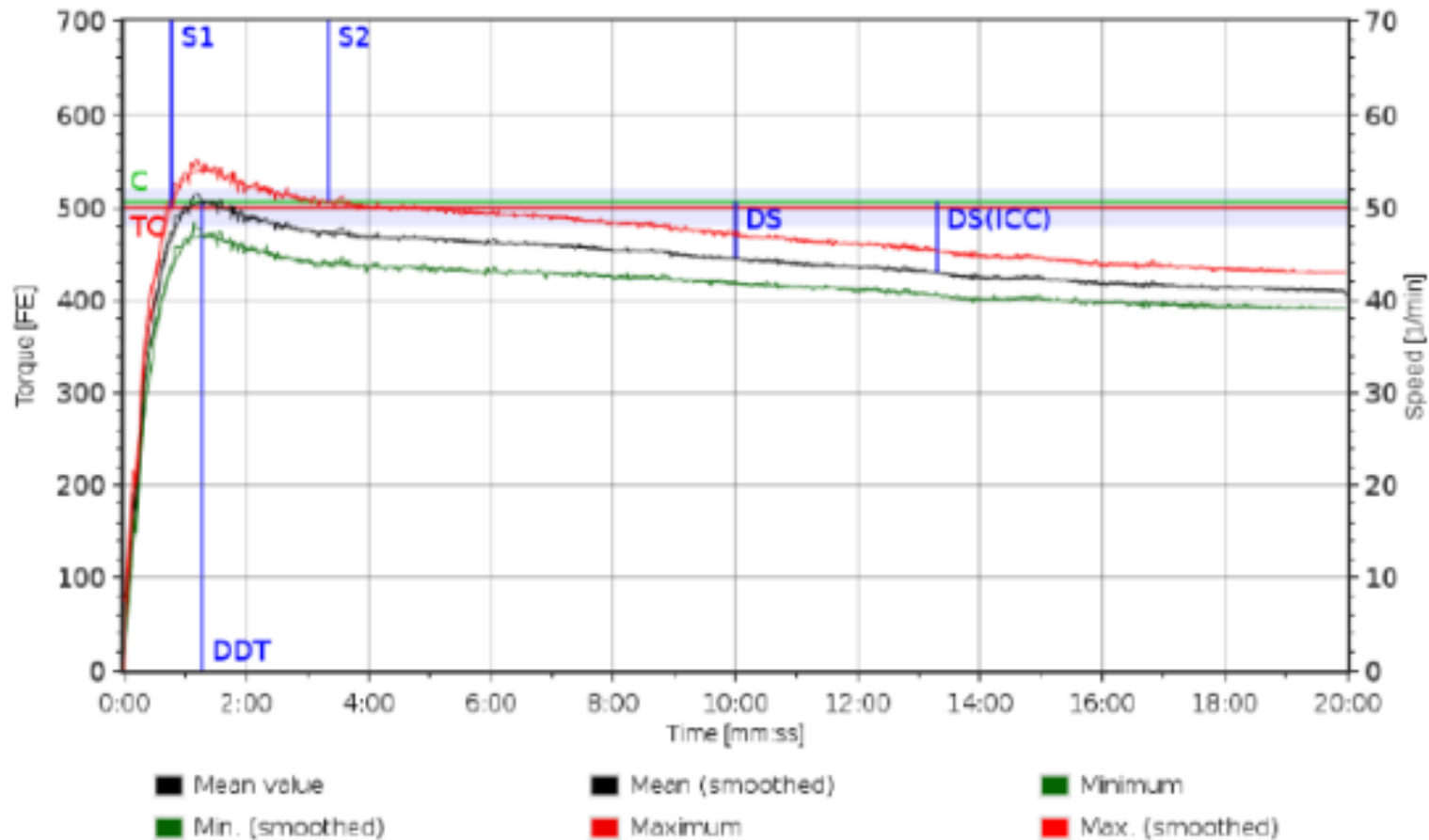
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Africa

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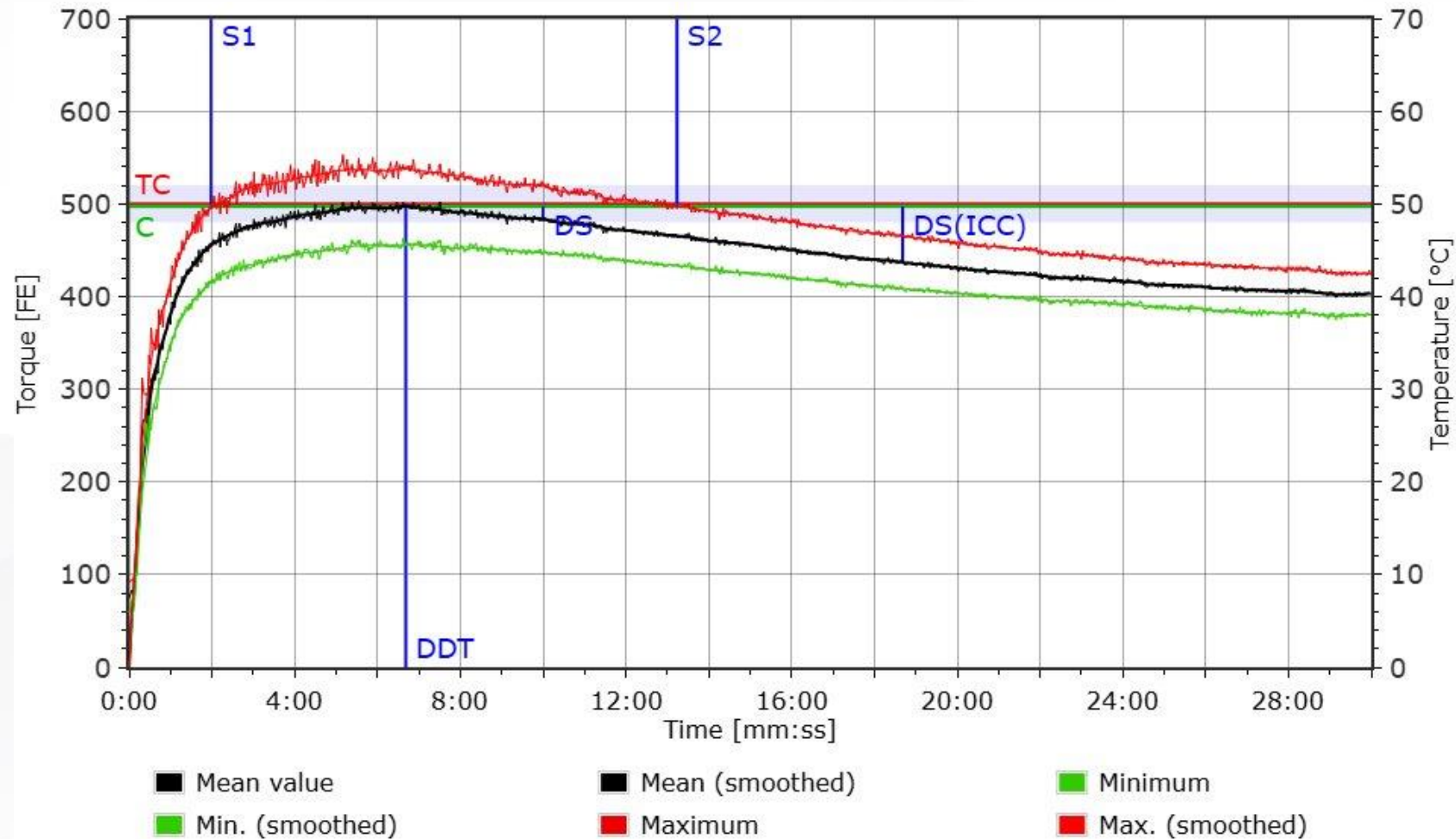
Africa

Farinograph



Africa

Farinograph



Africa

Farinograph

FARINOGRAM				
% Absorption	59,0%	62,7%	62,2%	61,3%
Development time	2:51	06:41	02:01	1:54
Stability	10:39	11:15	09:20	10:04
GLUTOMATIC				
Wet Gluten	30,2	31,2	26,3	27,6
INDEX	98	97	97	90

China

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China

Farinograph

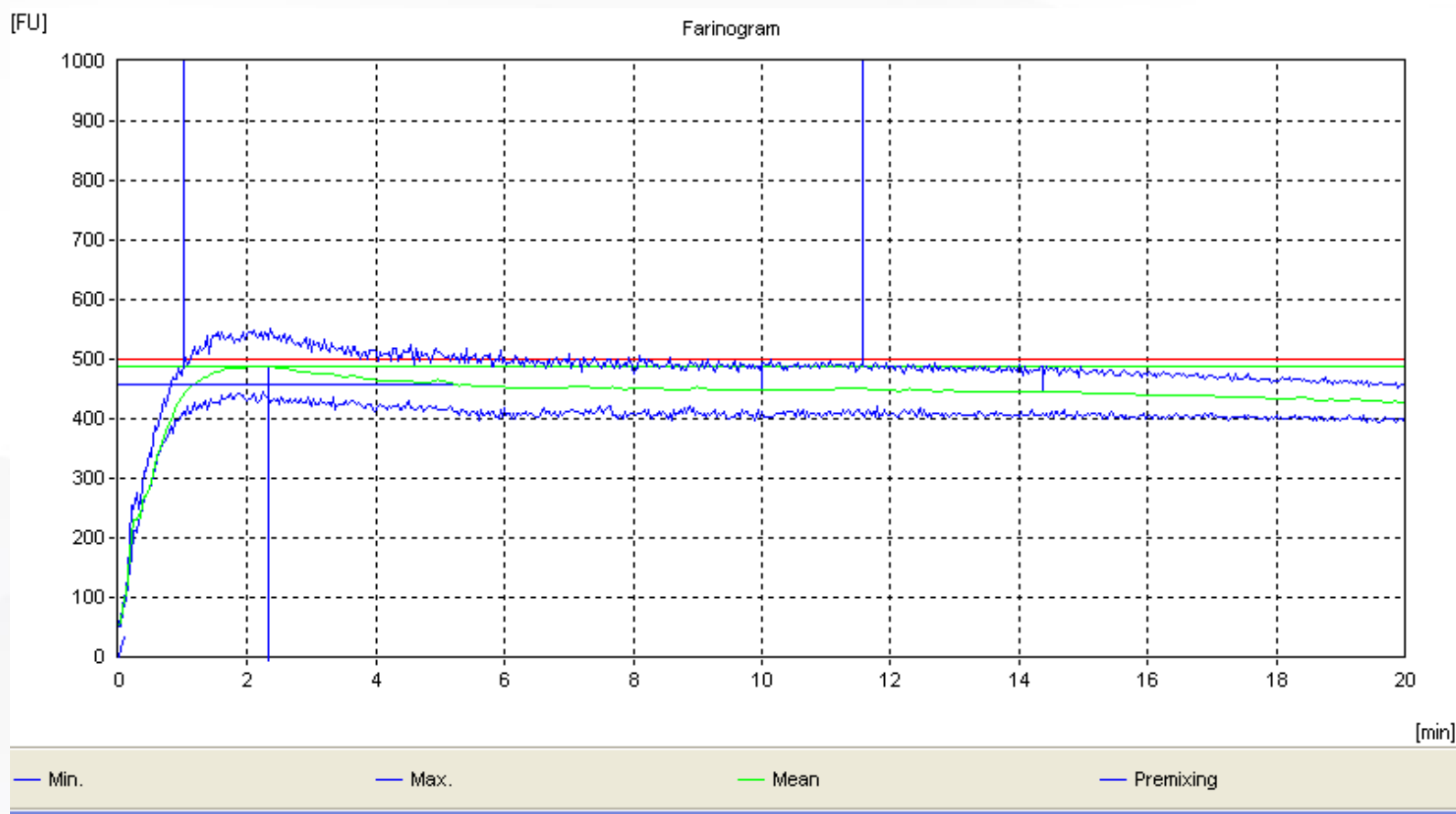
FARINOGRAM		
% Absorption	65 %	62.7 %
Development time	8:50	06:41
Stability	19:27	11:15
GLUTOMATIC		
Wet Gluten	31,9	31,2
INDEX	94,2	97

Mexico

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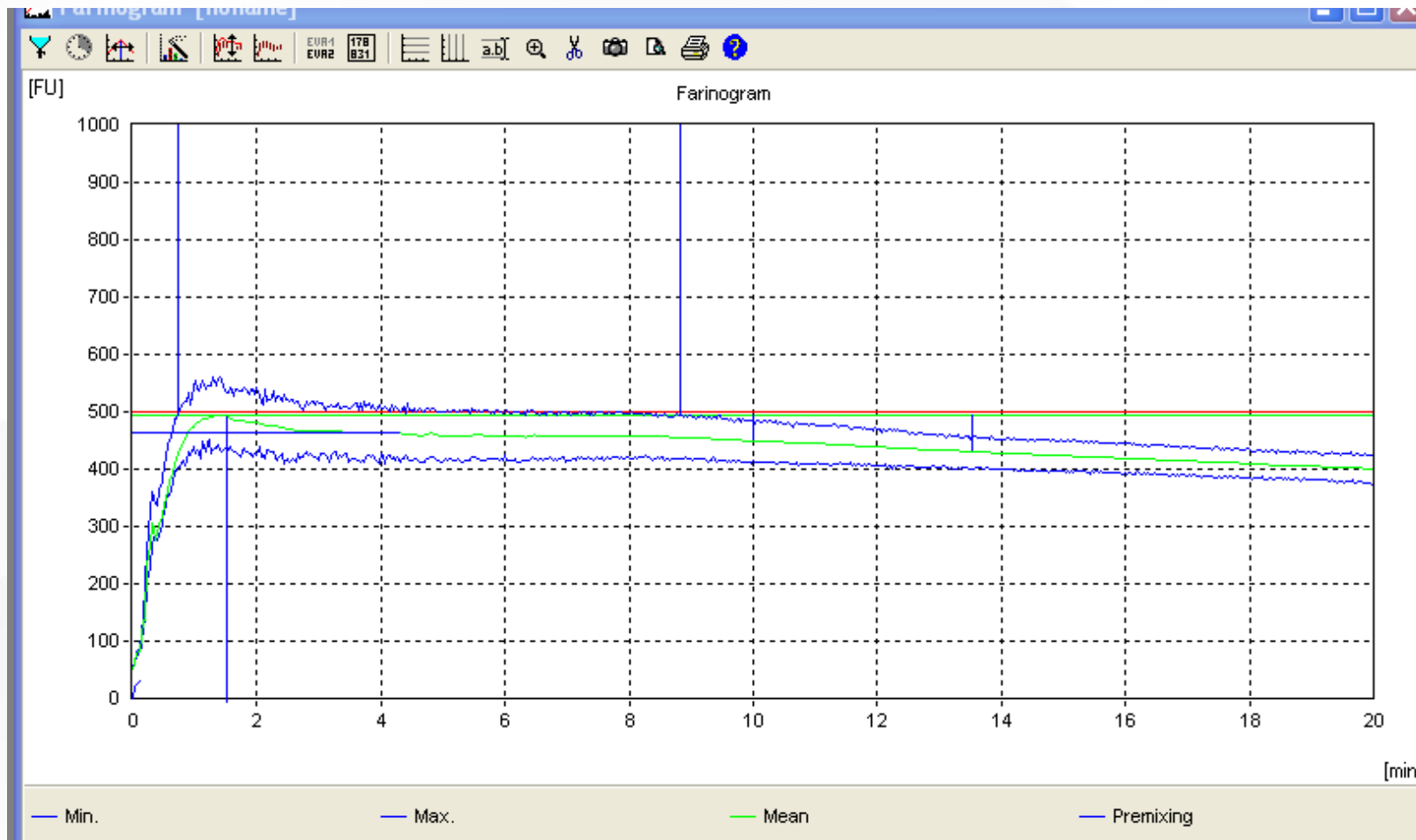
Mexico

Farinograph



Mexico

Farinograph



Mexico

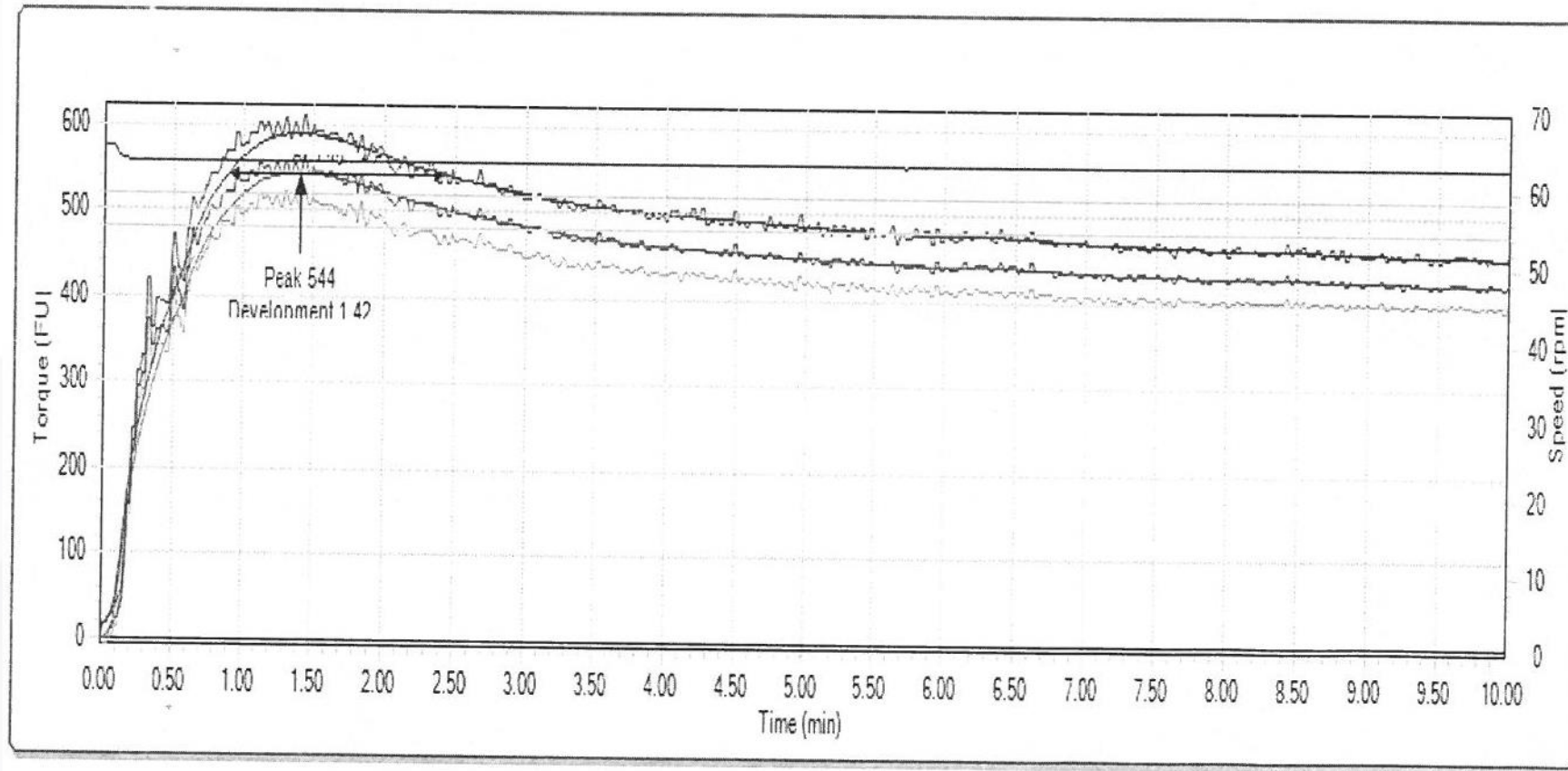
Farinograph

FARINOGRAM			
% Absorption	60,7	57,2	55,8
Development time	2:53	1:48	1:55
Stability	11:13	5:02	14:17
GLUTOMATIC			
Wet Gluten	30,1	24,4	28,9
INDEX	97	97	96

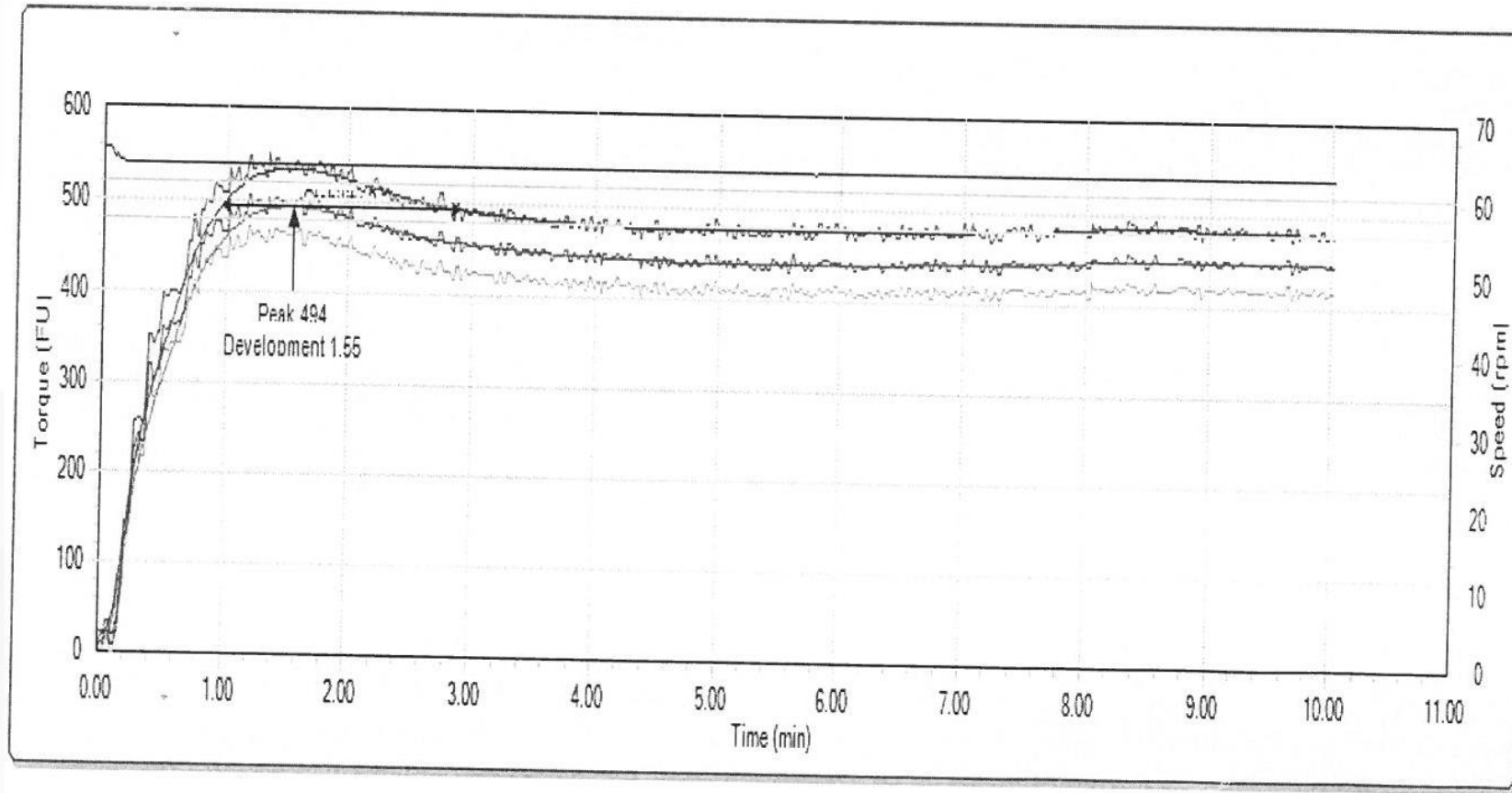
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Middle east Farinograph



Middle east Farinograph



Middle East

Farinograph

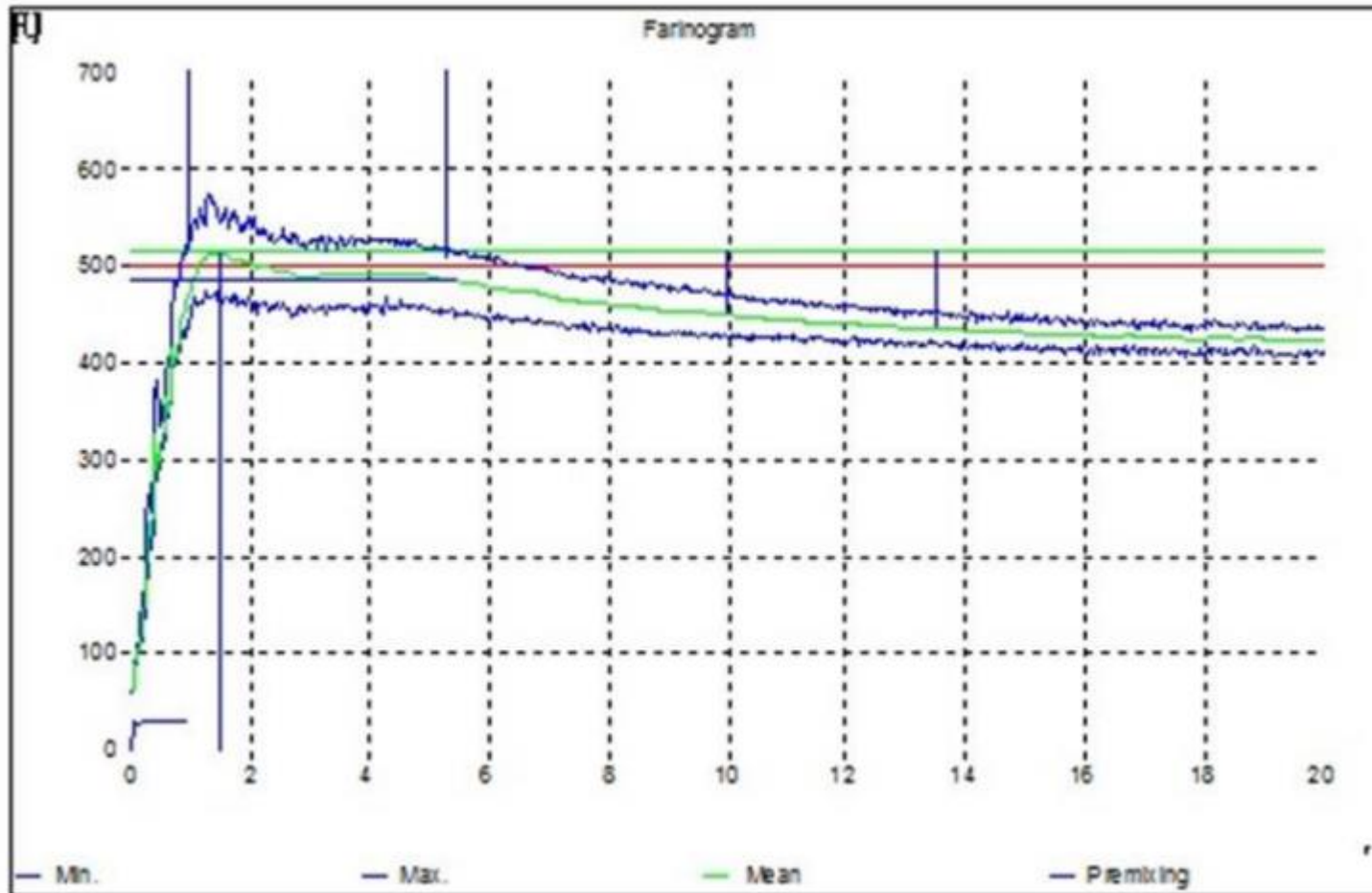
FARINOGRAM			
% Absorption	61,1 %	59,8%	60,3%
Development time	1:40	1:34	1:45
Stability	1:50	2:00	1:58

Turkey

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Turkey

Farinograph



Turkey

Farinograph

FARINOGRAM		
% Absorption	57,4%	56,2%
Development time	1:49	2:00
Stability	4:32	9:28

Ingredients

Ingredients

Improver

Type		Effect
Emulsifier	Mono-Diglycerides, SSL, Datem	Dough tolerance, Extensibility, Machinability Moisture retention, Reduced staling



Ingredients

Improver

Improvers		
Type		Effect
Gums	Guar Gum, Xanthan Gum, Acacia Gum	Machinability, Moisture retention

Guar Gum

Thickening agent / Binder
Improved Texture / structure
in dough

Prevents separation of
ingredients

Xanthan Gum

Thickening agent / Binder
Water binding

Crumb structure
Good for frozen
Gummy texture

Acacia Gum

Thickening agent / Binder
Improved Texture

Fresh Keeping properties

Ingredients

Other

Type	%		Effects
Baking powder	0,5 – 4	Single or double acting	Thickness of final product
Acids		Fumaric acid, Lactic acid, Citric acid	Reduction of pH
Reducing agents		L Cysteine, Sodium metabisulfite, Yeast, Enzymes	Reduce mixing time, Reduce press intensity
Gluten	0 - 6	Quality	Dough development, Mouthfeel and Stability

Ingredients

Other

Type		Effects
Lecithin	Soy or Sunflower	Stabilize oil in water Improved reliability Moisture retention
Modified starches	Depending on Starch	Improved reliability Moisture retention

Ingredients

Enzymes

Type	Effect
Amylases	Dough handling and shelf life
Xylanases	Uniform texture and reduce cracking



Ingredients

Enzymes

Type	Effect
Lipases	Dough stability
Proteases	Improve machinability





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Together. Better Baking.

Thank you very much for your attention

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