

## Certificate of Analysis

<b>Product Name</b>	<b>AstaReal® P2AF</b>		
<b>Description</b>	Natural Astaxanthin Extract Powder ( <i>Haematococcus pluvialis</i> extract)	<b>Date of Manufacturing</b>	March 5, 2018
<b>Lot Number</b>	803119	<b>Date of Expiry</b>	March 4, 2020
<b>Country of Origin</b>	Japan		
<b>Storage Condition</b>	Store in an air tight sealed container, at or lower than 10°C (50°F). Avoid direct sunlight, exposure to air or strong oxidizers.		

Analysis	Specification	Method	Result
Appearance	Red Powder	Visual Inspection	Complies
Heavy Metals	Less than 20 ppm	Colorimetric method*	< 10 ppm
Lead	Less than 0.5 ppm	Atomic absorption spectrophotometry**	< 0.05 ppm
Arsenic	Less than 2 ppm	Atomic absorption spectrophotometry**	< 0.1 ppm
Cadmium	Less than 1 ppm	Atomic absorption spectrophotometry**	< 0.01 ppm
Mercury	Less than 1 ppm	Atomic absorption spectrophotometry**	< 0.01 ppm
Standard Plate Count	Less than 3,000 cfu/g	Standard agar plate**, 35 °C, 48 hours	< 10 cfu/g
Mold/Yeast	Less than 300 cfu/g	Potato dextrose agar plate*, 20 ~ 25 °C, 5 days	< 10 cfu/g
<i>Staphylococcus</i>	Negative/g	JP*** 4.05., Biological Limit Test 3.5	Negative/g
<i>Salmonella</i>	Negative/g	JP*** 4.05., Biological Limit Test 3.3	Negative/g
Coliforms	Negative/g	BGLB method**	Negative/g
<i>E.coli</i>	Negative/g	JP*** 4.05., Biological Limit Test 3.2	Negative/g
Loss on Drying	Less than 5 %	105 °C, 2 hours*	1.5 %
Astaxanthin Content	Not less than 2.0 % (As Astaxanthin free form)	In-House (HPLC method)	2.2 %

\*: Japanese Standard of Food Additives (8<sup>th</sup> Edition)

\*\* : Japanese Standard Method of Analysis in Food Safety Regulation

\*\*\*: Japanese Pharmacopoeia 17<sup>th</sup> Edition



**Ririko Matsumoto, Quality Control Manager, Life Science Division**

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AstaReal® P2AF Ver.02

**Fuji Chemical Industries Co., Ltd.**

55 Yokohoonji, Kamiichi, Nakaniikawa-gun, Toyama, Japan 930-0397  
T +81-76-472-2323 F +81-76-472-2330 info@fujichemical.co.jp