



## Standardized Tea Ingredients

*Functional food and dietary supplement industries are primarily interested in two categories of compounds extracted from tea: polyphenols and L-theanine. Polyphenols have gained market recognition as potent antioxidants. L-theanine is a naturally occurring amino acid in tea that has been documented to both increase focus and impart calm.*

*Applications include functional foods and beverages, dietary supplements, and cosmetics.*

*--- Firsd Tea Website*

### **Introduction**

For thousands of years, China has known about the health benefits of tea (*camellia sinensis*). More recently, scientists all over the world have identified the functional components in tea that are especially beneficial to human health, namely, tea polyphenols, L-theanine, and caffeine.

#### **Tea polyphenols**

Tea polyphenols are complex mixtures of phenolic compounds naturally found in tea. As the largest category of phytochemicals, polyphenols are considered the most important functional components in tea. Tea catechins, which include epigallocatechin-3-gallate (EGCG), epigallocatechin (EGC), epicatechin-3-gallate (ECG), epicatechin (EC), galliccatechin (GC), and catechin (C) are the most abundant among the range of tea polyphenols..

Numerous epidemiological observations and experimental studies have shown promising beneficial effects of tea polyphenols on humans and animals. The potential health promoting properties have been highly associated with the antioxidant properties of tea polyphenols, among which EGCG is believed to be the most effective. Other researchers have studied the effects of tea polyphenols in preventing tooth decay, and protection from radiation along with anti-microbial, anti-anaphylactic, and detoxifying properties.

#### **L-theanine**

L-theanine is a unique free amino acid naturally produced by tea trees, which constitutes only 1~2% of tea leaves by dry weight. Based on recent scientific studies, L-theanine might be a mild anxiolytic, which promotes relaxation without inducing drowsiness and sedation, helps reduce stress, and improves sleep quality. Due to a potential synergistic effect with caffeine, L-theanine may also improve cognitive function.

### **Firsd Tea North America LLC**

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## **Quality Assurance**

Fird Tea provides tea polyphenols (catechins), EGCG and natural L-theanine, which are produced in GFSI (FSSC 22000) and kosher certified facilities. Furthermore, with advanced processing techniques, we are able to eliminate the use of chloroform and other controversial solvents, to offer our customers reliable EU-compliant products.

## **Product Specification Sheets**

**Product Name** Tea Polyphenols

<b>Test</b>	<b>Unit</b>	<b>Specifications</b>
Appearance	-	Yellow or Yellowish Brown Powder
Total Tea Polyphenols	%	30.0 ~ 98.0
Total Catechins	%	15.0 ~ 80.0
EGCG	%	5.0 ~ 60.0
Caffeine	%	0.5 ~ 12.0
Total Plate Count	cfu /g	≤1.0×10 <sup>3</sup>
Yeast & Mold	cfu /g	≤1.0×10 <sup>2</sup>
Diarrheagenic E.coli	/25g	Negative
Salmonella	/25g	Negative
Lead	mg/kg	≤5.0
Arsenic	mg/kg	≤2.0

**Product Name** EGCG

<b>Test</b>	<b>Unit</b>	<b>Specifications</b>
Appearance	-	Grey or Ivory White Powder
EGCG	%	70.0 ~ 98.0
Caffeine	%	0.1 ~ 0.5
Total Plate Count	cfu /g	≤1.0×10 <sup>3</sup>
Yeast & Mold	cfu /g	≤1.0×10 <sup>2</sup>
Diarrheagenic E.coli	/25g	Negative
Salmonella	/25g	Negative
Lead	mg/kg	≤0.5
Arsenic	mg/kg	≤0.5

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**Product Name** Natural L-Theanine

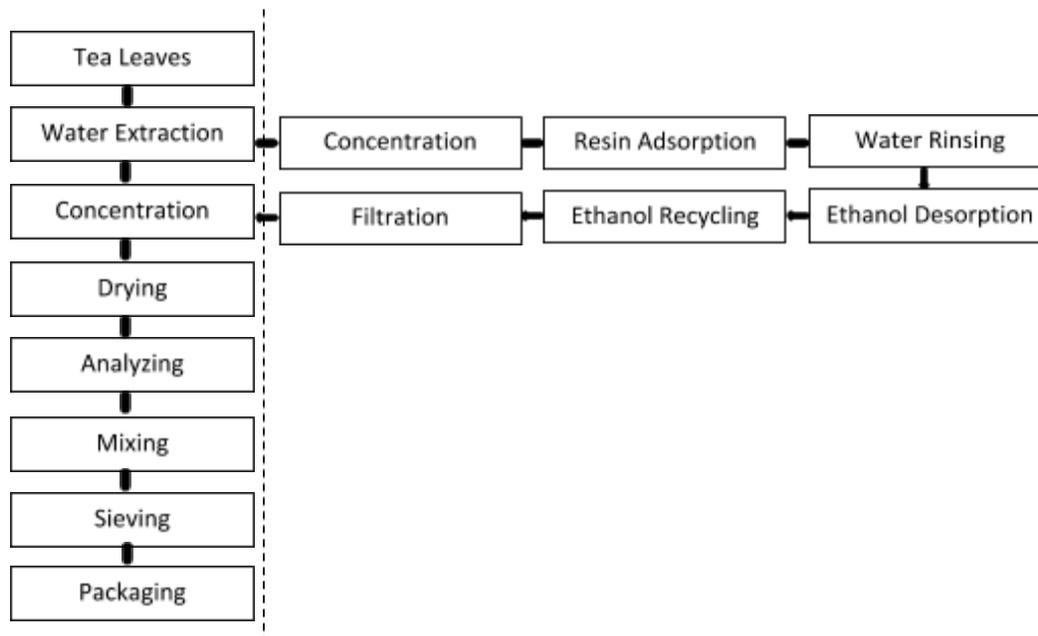
Test	Unit	Specifications
Appearance	-	Yellowish Brown Powder
Solubility	-	Water Soluble
L-Theanine	%	20.0 ~ 40.0
Caffeine	%	0.5 ~ 1.0
Total Plate Count	cfu /g	$\leq 1.0 \times 10^3$
Yeast & Mold	cfu /g	$\leq 1.0 \times 10^2$
Diarrheagenic E.coli	/25g	Negative
Salmonella	/25g	Negative
Lead	mg/kg	$\leq 1.0$
Arsenic	mg/kg	$\leq 1.0$

## Processing

### EU Tea Polyphenols (Catechins) and EGCG Process Flow Diagram

TP30, TP40, TP50

TP80, TP90, TP95, TP98, EGCG



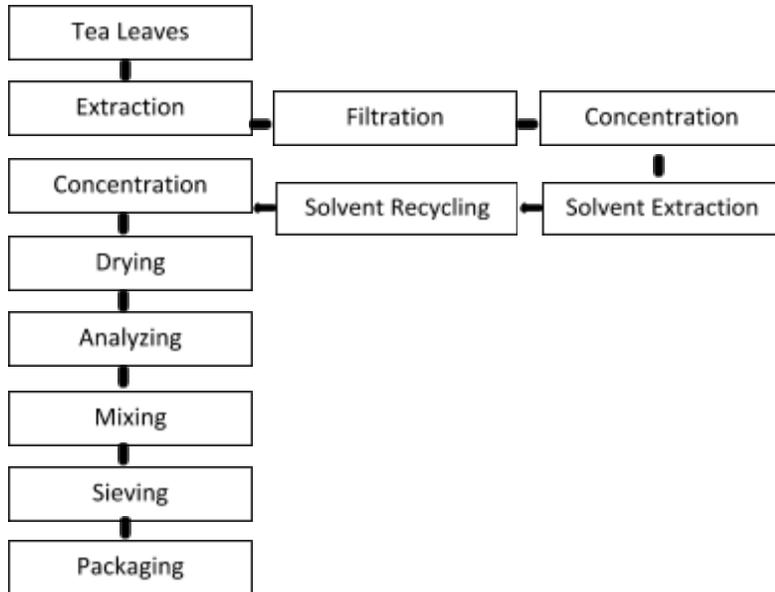
\*The concentration of Total Polyphenols, catechins, EGCG and caffeine varies depending on different raw material, temperature and time of water extraction, and parameters of water rising and ethanol desorption.

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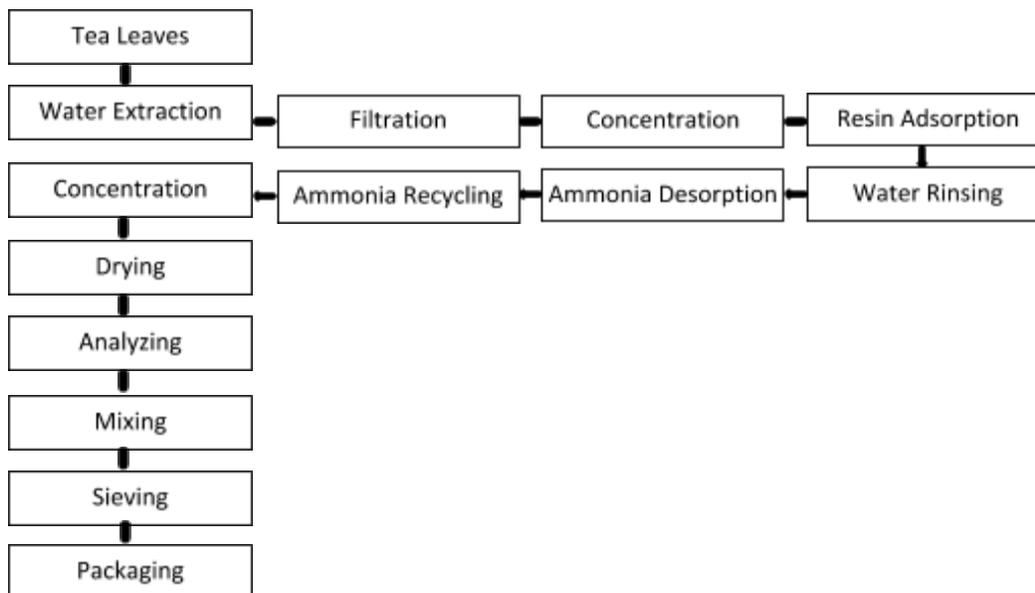


### US Conventional Tea Polyphenols (Catechins) Process Flow Diagram



\*The concentration of Total Polyphenols, catechins, EGCG and caffeine varies depending on different raw material, and temperature, time and other parameters of extraction.

### Natural L-Theanine Process Flow Diagram



\*The concentration of L-Theanine varies depending on different raw material, temperature and time of water extraction, and parameters of water rising and ammonia desorption.

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