

SPECIFIC COMPOUNDS DATA SHEET



Terra Ag
Technologies®

ORGANIC PLANT & SOIL PRO2™



L-Amino Acids

Component	Category	mg/L (≈ppm)	Benefits
1 Alanine	Amino Acid	693.87	Temp/hypoxia tolerance
2 Arginine	Amino Acid	612.30	N storage/transport
3 Aspartic Acid	Amino Acid	306.53	Salinity tolerance
4 Cystine	Amino Acid	2.73	Defense precursors
5 Glutamic Acid	Amino Acid	646.67	Central metabolism
6 Glycine	Amino Acid	1603.64	N use efficiency
7 Histidine	Amino Acid	52.86	Protein/stress
8 Isoleucine	Amino Acid	115.97	Fungal resistance
9 Leucine	Amino Acid	198.61	Pathogen defense
10 Lysine	Amino Acid	260.23	Growth regulation
11 Methionine	Amino Acid	37.57	Regulator under drought
12 Phenylalanine	Amino Acid	152.78	Defense & growth
13 Proline	Amino Acid	928.54	Drought/salt stress
14 Serine	Amino Acid	75.95	Metabolism/signaling
15 Threonine	Amino Acid	58.80	Growth/seed dev.
16 Tryptophan	Amino Acid	12.91	Photosynthesis & growth
17 Tyrosine	Amino Acid	77.51	Photosynthesis
18 Valine	Amino Acid	173.34	C/N balance; lignin

Bio-Polymero

Component	Category	mg/L (≈ppm)	Benefits
19 Alginate Acid	Bio-polymer	248.32	Moisture retention; chelation

Humic Substances

Component	Category	mg/L (≈ppm)	Benefits
20 Fulvic Acid	Humic Substances	693.87	Temp/hypoxia tolerance
21 Humic Acid	Humic Substances	612.30	N storage/transport
22 Potassium Humate	Humic Substances	306.53	Salinity tolerance

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Minerals-Elements

Component		Category	mg/L (≈ppm)	Benefits
23	Boron (B)	Mineral/Element	49.66	Flowering; sugar transport; cell wall
24	Copper (Cu)	Mineral/Element	22.35	Lignification; redox
25	Iron (Fe)	Mineral/Element	148.99	Chlorophyll; electron transport
26	Manganese (Mn)	Mineral/Element	124.16	Photosystem II; enzyme activation
27	Molybdenum (Mo)	Mineral/Element	1.24	Nitrate reductase cofactor
28	Potassium (K)	Mineral/Element	931.21	Osmoregulation; fruit size/quality
29	Sulfur (S)	Mineral/Element	11.86	Amino Acids (Cys/Met) synthesis
30	Total Nitrogen (N)	Mineral/Element	10998.99	Protein/chlorophyll synthesis
31	Zinc (Zn)	Mineral/Element	148.99	Auxin synthesis; enzyme cofactor

Organic Acids

Component		Category	mg/L (≈ppm)	Benefits
32	Acetic Acid	Organic Acid	330.00	Root/shoot development
33	Citric Acid	Organic Acid	122.22	Chelation; growth/photosynthesis
34	Glutaric Acid	Organic Acid	366.67	Protein structure role
35	Lactic Acid	Organic Acid	122.22	Plant health & microbiome
36	Malic Acid	Organic Acid	122.22	Chlorophyll; stress mitigation
37	Pyrrolidone Carboxylic Acid (PCA)	Organic Acid	244.45	Moisture retention; antibacterial

Organic Matters

Component		Category	mg/L (≈ppm)	Benefits
38	Organic Matter (de extraccion)	Organic matter/protein	501.11	Soil biology substrate
39	Protein de Materia Organica	Organic matter/protein	232.22	N reservoir; enzymes

Essential Sugars

Component		Category	mg/L (≈ppm)	Benefits
40	Fructose	Sugar	183.33	Regulatory sugar; signals
41	Glucose	Sugar	183.33	Energy; cell wall synthesis
42	Lactose	Sugar	183.33	Mineral absorption
43	Maltose	Sugar	183.33	Storage glucose
44	Sucrose	Sugar	183.33	Translocation; yield

Anti-Oxidants

Component		Category	mg/L (≈ppm)	Benefits
45	Ascorbate (Vitamin C)	Antioxidant	< 100.00	Mitigate Oxidative Stress and free radicals
46	Tocopherols (Vitamin E)	Antioxidant	< 100.00	Lipid antioxidant for membranes
47	Carotenoids (β-carotene, etc.)	Antioxidant	< 100.00	neutralizes oxidative oxygen
48	Phenolic acids (gallic, caffeic, ferulic)	Antioxidant	< 100.00	radical scavengers
49	Flavonoids (quercetin, kaempferol)	Antioxidant	< 100.00	UV antioxidant protection
50	Glycine betaine	Antioxidant	< 100.00	Osmoprotectant, stabilizes enzymes
51	Mannitol	Antioxidant	< 100.00	ROS collector, osmotic balance
52	Fucoidan	Antioxidant	< 100.00	Sulphated polysaccharide. Stress roles

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Essential Enzymes

Component		Category	mg/L (≈ppm)	Benefits
53	Catalase	Enzyme	< 100.00	Detoxifies H ₂ O ₂ ; Oxidative stress control
54	Peroxidase	Enzyme	< 100.00	Remove peroxides and lignification
55	Superoxide dismutase (SOD)	Enzyme	< 100.00	Convert O ₂ ⁻ radicals
56	Ascorbate peroxidase (APX)	Enzyme	< 100.00	Eliminates H ₂ O ₂ using ascorbate
57	Glutathione peroxidase (GPX)	Enzyme	< 100.00	Reduce peroxides; redox balance
58	Glutathione reductase (GR)	Enzyme	< 100.00	Regenerate GSH
59	MDHAR	Enzyme	< 100.00	Regenerate ascorbate
60	DHAR	Enzyme	< 100.00	Recycle rusty ascorbate
61	Nitrate reductase	Enzyme	< 100.00	N assimilation enzyme

Other Organic Components

Component		Category	mg/L (≈ppm)	Benefits
62	Chitin (β-1,4-N-acetylglucosamine)	Cell-wall Polymer	< 100.00	Causes defense and barrier against pathogens
63	β-1,3/β-1,6-Glucans	Cell-wall Glucans	< 100.00	Elicitors, fender priming
64	Mannoproteins	Wall Glycoproteins	< 100.00	Chelation, microbe-plant interaction
65	Ergosterol	Sterol	< 100.00	causes immune responses from plants
66	Trehalose	Compatible Solute	< 100.00	Osmoprotection. Stress mitigation
67	Mannitol	Polyol	< 100.00	ROS collection. Osmotic balance
68	Chitinases/Glucanases	Enzymes	< 100.00	Cell wall rotation. Elicitor
69	Proteases/Peptidases	Enzymes	< 100.00	Protein exchange. Peptide release
70	Laccases/Peroxidases	Enzymes	< 100.00	Oxidative modulation enzymes

Other Organic Components

Component		Category	mg/L (≈ppm)	Benefits
71	Plasma membrane H ⁺ -ATPase (AHA family)	Protein	< 100.00	Builds proton driving force for nutrient support and energizes adoption
72	Nitrate transporters (NRT1/NRT2)	Protein	< 100.00	High and low affinity nitrate absorption
73	Phosphate transporters (PHT1 family)	Protein	< 100.00	Phosphate absorption in the root epidermis
74	High-affinity K ⁺ transporter (HAK5)	Protein	< 100.00	K ⁺ absorption at minimal K levels
75	Iron transporter (IRT1)	Protein	< 100.00	Absorption of Fe ²⁺ on the root surface
76	Aquaporins (PIP1/PIP2)	Protein	< 100.00	Water channels. Improves Hydraulic conductivity

