

**ANGUS CHEMICAL COMPANY  
SALES SPECIFICATION**
**Effective Date:** 09/13/2022

**Supersedes Date:** NEW

**Name:** HEPES Biologics Plus

**Specification Number:** 193-4-S

**Additional Product Information:**
**Government and Industry Standards:** Refer to Regulatory Data Sheet

**Final Testing Requirements**

Test and Test Condition	Limit	Unit	Method	Note
Appearance, White crystalline powder	Pass		ANGUS 1400	
Solubility, 1M soln in H <sub>2</sub> O, clear and complete	Pass		ANGUS 1450	
Assay, by Titration	99.5 Min	WT%	ANGUS 2500	
UV ABS 260 nm, 1M	0.05 Max		ANGUS 3000	
UV ABS 280 nm, 1M	0.04 Max		ANGUS 3000	
Loss on Drying (LOD)	0.5 Max	WT%	ANGUS 1300	
Residual Solvent	0.3 Max	WT%	ANGUS 5192	
Residue on Ignition	0.1 Max		ANGUS 1311	
Identification, IR	Pass		ANGUS 3200	
pH, 5% Soln in H <sub>2</sub> O @ 25C	5.0 – 6.5		ANGUS 1200	
Dnase Detection	Pass		ANGUS 1270	
Rnase Detection	Pass		ANGUS 1260	
Protease Detection	Pass		ANGUS 1280	
Bioburden, CFU/g	100 Max	CFU/g	Current USP	1
Yeast & Mold CFU/g	100 Max	CFU/g	Current USP	1
Total Microbial aerobic count	100 Max	CFU/g	Current USP	1
Endotoxin	10 Max	EU/g	Current USP	1
Aluminum (Al)	5.0 Max	ppm	ANGUS 3511	
Antimony (Sb)	5.0 Max	ppm	ANGUS 3511	
Arsenic (As)	5.0 Max	ppm	ANGUS 3511	
Barium (Ba)	5.0 Max	ppm	ANGUS 3511	
Bismuth (Bi)	5.0 Max	ppm	ANGUS 3511	

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READ PRECAUTIONARY INFORMATION AND MATERIAL SAFETY SHEETS. THIS PRODUCT IS SHIPPED IN COMPLIANCE WITH APPLICABLE LAWS AND REGULATIONS REGARDING CLASSIFICATION, PACKAGING, SHIPPING AND LABELING.

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Cadmium (Cd)	5.0 Max	ppm	ANGUS 3511	
Calcium (Ca)	5.0 Max	ppm	ANGUS 3511	
Chromium (Cr)	5.0 Max	ppm	ANGUS 3511	
Cobalt (Co)	5.0 Max	ppm	ANGUS 3511	
Copper (Cu)	5.0 Max	ppm	ANGUS 3511	
Iron (Fe)	5.0 Max	ppm	ANGUS 3511	
Lead (Pb)	5.0 Max	ppm	ANGUS 3511	
Lithium (Li)	5.0 Max	ppm	ANGUS 3511	
Magnesium (Mg)	5.0 Max	ppm	ANGUS 3511	
Manganese (Mn)	5.0 Max	ppm	ANGUS 3511	
Mercury (Hg)	5.0 Max	ppm	ANGUS 3511	
Molybdenum (Mo)	5.0 Max	ppm	ANGUS 3511	
Nickel (Ni)	5.0 Max	ppm	ANGUS 3511	
Zinc (Zn)	5.0 Max	ppm	ANGUS 3511	

Notes:
1. Bioburden, Yeast & Mold, Total Microbial Aerobic Count and Endotoxin analysis performed at a qualified, approved third-party laboratory.

Material Number	Packaging Size
376168	AN HEPES BIOLOGICS PLUS SMPL
376169	AN HEPES BIOLOGICS PLUS DRP1KG
376170	AN HEPES BIOLOGICS PLUS DRP5KG
376171	AN HEPES BIOLOGICS PLUS DRP12KG
376172	AN HEPES BIOLOGICS PLUS DRP25KG

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