

SECURE CHEMISTRY. SECURE SUPPLY. SECURE CONFIDENCE.



ANGUS is the world's only fully integrated manufacturer of TRIS AMINO™ buffers for use in a variety of demanding pharmaceutical and biotechnology applications. With more than 50 years of TRIS manufacturing experience, we continue providing TRIS AMINO grades that meet the dynamic needs – as well as the regulatory and performance requirements – of the global markets we serve.

TRIS AMINO PRODUCT			PACKAGE SIZE AND GMID						PROPERTIES AND SPECIFICATIONS					
GRADE*	MONOGRAPH	cGMP	1 kg	5 kg	12 kg	25 kg	50 kg	50 lb	COUNTRY OF ORIGIN	CAS #	MOLECULAR WEIGHT (DALTON)	pH RANGE	MINIMUM PURITY BY TITRATION (%)	MINIMUM PURITY BY GC (%)
Industrial Series														
TRIS AMINO™ Crystals								144877	U.S.	77-86-1	121.14	10-11.5	99	N/A
Buffer Series														
TRIS AMINO™ Standard Buffer						273255			U.S.	77-86-1	121.14	10-11.5	99.3	N/A
TRIS AMINO™ Buffer ACS Grade	ACS		375893	375894		146914			U.S.	77-86-1	121.14	10-11.5	99.8	N/A
TRIS AMINO™ AC Buffer							375981		Germany	77-86-1	121.14	10-11.5	N/A	99.9
Ultra Pure Series														
TRIS AMINO™ Ultra Pure	USP/EP	X	375546	154032	201109	288737	151698		U.S.	77-86-1	121.14	10-11.5	99.9	99.9
TRIS AMINO™ Ultra Pure	USP/EP/JPC	X			11103466	279652	375624		U.S.	77-86-1	121.14	10-11.5	99.9	99.9
TRIS AMINO™ Ultra Pure	USP/EP/JPC/ChP ⁴	X			375547	375548			U.S.	77-86-1	121.14	10-11.5	99.9	99.9
TRIS AMINO™ Ultra Pure Biologics Grade ¹	USP/EP	X			375825	375824	375647		U.S.	77-86-1	121.14	10-11.5	99.9	99.9
TRIS AMINO™ Molecular Biology Grade ²	USP/EP	X	375897	375898	376125	375845			U.S.	77-86-1	121.14	10-11.5	99.9	99.9
TRIS AMINO™ AC Ultra Pure	USP/EP	X				375904			Germany	77-86-1	121.14	10-11.5	99.9	99.9
TRIS AMINO™ AC Ultra Pure	USP/EP/JPC	X				375905			Germany	77-86-1	121.14	10-11.5	99.9	99.9
TRIS AMINO™ AC Ultra Pure	USP/EP/JPC/ChP	X				375906			Germany	77-86-1	121.14	10-11.5	99.9	99.9
TRIS AMINO™ AC Ultra Pure Biologics Grade ¹	USP/EP	X		376127	376126	375907			Germany	77-86-1	121.14	10-11.5	99.9	99.9
TRIS Derivatives Series														
TRIS AMINO™ HCl				376066	376067	376068			U.S.	1185-53-1	157.6	4.2-5.0	99.0	N/A
TRIS AMINO™ HCl Biologics Plus ³				376070	376071	376072	376099		U.S.	1185-53-1	157.6	4.2-5.0	99.5	N/A
TRIS HCl Prime		X	375544	375545	375674	375435	375675		U.S.	1185-53-1	157.6	4.2-5.0	99.5	N/A
BIS-TRIS						146820			Mexico	6976-37-0	209.24	5.8-7.2	99.0	N/A
BIS TRIS Biologics Grade ¹				376043	376042	376041			Mexico	6976-37-0	209.24	5.8-7.2	99.0	N/A

* All grades are GMO-free and BSE/TSE-free. ¹ Includes endotoxin and bioburden testing. ² Includes DNase, RNase and Protease testing. ³ Includes endotoxin, bioburden, yeast and mold, DNase, RNase and Protease testing.

⁴ TRIS AMINO™ Ultra Pure USP/EP/JPC/ChP grade product has an excipient registration number with the Chinese Center for Drug Evaluation (CDE). This registration number, F20190000165, can be utilized by customers in order to list ANGUS' TRIS AMINO™ product in their regulatory filings with the CDE for new drug products or substances.

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