

ANGUS PRODUCES CHEMISTRIES THE RIGHT WAY—

EMPOWERING CUSTOMERS TO DO BUSINESS THE BEST WAY.

**Is your Tris supply secure and sustainable? Is it always there when needed?
Can it be relied upon to meet the most stringent global compliance standards?**

Few things are more important to biopharmaceutical manufacturers than a reliable supply chain. Understanding this, ANGUS Life Sciences provides customers the confidence that only comes from working with the world's only integrated manufacturer of TRIS AMINO—offering a supply chain with 100% traceability, with all key raw materials produced on site to stringent specifications and with a clear line of sight back to base materials.

TIGHTLY CONTROLLED MANUFACTURING ENSURES QUALITY AND PERFORMANCE

ANGUS' manufacturing facilities in the U.S. and Germany, as well as our ANGUS Life Sciences warehouse and packaging facility in Niagara Falls, New York, USA, are cGMP-compliant and certified to ISO 9001:2015 quality management system standards.

● Back to Basics (C₃H₈ & NH₃)

- Stringent control of raw materials
- All key reagents produced on site

● Integrated Synthesis

- 100% fully integrated manufacturing
- 100% traceability

● TRIS AMINO™ TRIS AMINO™ Buffer TRIS AMINO™ Crystals

- Multiple purity and grades
- Regulatory compliance
- Compendia needs

PRODUCT STEWARDSHIP

ANGUS encourages its customers to review their applications of ANGUS products from the standpoint of human health and environmental quality. To help ensure that ANGUS products are not used in ways for which they are not intended, ANGUS personnel will assist customers in dealing with environmental and product safety considerations. For assistance, product Safety Data Sheets, or other information, please visit [angus.com](https://www.angus.com) or contact us at info@angus.com.



DISCOVER A **BETTER WAY™**

[angus.com](https://www.angus.com)

©™Trademark of ANGUS Chemical Company Notice: No freedom from infringement of any patent owned by ANGUS or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other government enactments. The product shown in this literature may not be available for sale and/or available in all geographies where ANGUS is represented. The claims made may not have been approved for use in all countries. ANGUS assumes no obligation or liability for the information in the document. References to "ANGUS" or the "Company" mean the ANGUS Chemical Company legal entity selling the products to Customer unless expressly noted. NO WARRANTIES ARE GIVEN: ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED. Published August 2018



TRIS REAGENTS

Selection Guide

DISCOVER A **BETTER WAY™**

SECURE **CHEMISTRY.** SECURE **SUPPLY.**
SECURE **CONFIDENCE.**

ANGUS is the world's only fully integrated manufacturer of globally compliant TRIS AMINO™ reagents 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						PROPERTIES					SPECIFICATIONS		INDUSTRIAL COATINGS	WATER TREATMENT	BIOCIDES	REPROCESSING	DIAGNOSTICS	R&D DNA EXTRACTION & PURIFICATION	R&D PROTEIN EXTRACTION & PURIFICATION	R&D ELECTROPHORESIS GEL SYSTEMS	THERAPEUTIC ANTIBODY PURIFICATION	BLOOD PLASMA FRACTIONATION	THERAPEUTIC PROTEIN PURIFICATION	CELL CULTURE	API FORMULATION	PERSONAL CARE/COSMETICS
GRADE	GMID	COMPENDIA	cGMP	FEATURES	COO	CAS #	MW	pH RANGE	BSE/TSE-FREE	GMO-FREE	ASSAY BY TITRATION	PURITY BY GC														
TRIS AMINO Crystals	144877				U.S.	77-86-1	121.14	10-11.5	✓	✓	99.0% Min		✓	✓	✓	✓										✓
TRIS AMINO Buffer	273255				U.S.	77-86-1	121.14	10-11.5	✓	✓	99.3% Min				✓	✓	✓									
TRIS AMINO	146914	ACS	✓	ACS pH specifications 10.3-10.5	U.S.	77-86-1	121.14	10-11.5	✓	✓	99.8 -100.1%	99.9% Min					✓	✓	✓	✓						
TRIS AMINO Ultra Pure	288737	USP/EP	✓	High purity with lowest elemental impurities profile	U.S.	77-86-1	121.14	10-11.5	✓	✓	99.9% Min	99.9% Min					✓	✓	✓	✓	✓	✓	✓		✓	
TRIS AMINO Ultra Pure	279652	USP/EP/JPC	✓	High purity with lowest elemental impurities profile	U.S.	77-86-1	121.14	10-11.5	✓	✓	99.9% Min	99.9% Min					✓	✓	✓	✓	✓	✓	✓		✓	
TRIS AMINO Ultra Pure	375548	USP/EP/JPC /ChP	✓	High purity with lowest elemental impurities profile	U.S.	77-86-1	121.14	10-11.5	✓	✓	99.9% Min	99.9% Min					✓	✓	✓	✓	✓	✓	✓	✓	✓	
TRIS AMINO Ultra Pure Biologics	375824	USP/EP	✓	Endotoxin and bioburden tested; high purity with lowest elemental impurities profile	U.S.	77-86-1	121.14	10-11.5	✓	✓	99.9% Min	99.9% Min					✓	✓	✓	✓	✓	✓	✓	✓	✓	
TRIS AMINO ULTRA PC	248506		✓	Globally compliant for personal care and cosmetics products	U.S.	77-86-1	121.14	10-11.5	✓	✓	99.0% Min															✓
TRIS AMINO HCl	146948			Standard tested TRIS HCl	U.S.	1185-53-1	157.60	4.2-5.0	✓	✓	99.0% Min						✓	✓	✓	✓	✓		✓			
TRIS AMINO HCl Prime	375435		✓	High purity with lowest elemental impurities profile	U.S.	1185-53-1	157.60	4.2-5.0	✓	✓	99.5% Min						✓	✓	✓	✓	✓		✓			
BIS-TRIS	146820			High purity with lowest elemental impurities profile	Mexico	6976-37-0	209.24	5.8-7.2	✓	✓	99.0% Min						✓	✓	✓	✓	✓			✓		

DEDICATED TO WHAT MATTERS

ANGUS Life Sciences, a business of the ANGUS Chemical Company, provides dedicated support for biotechnology and pharmaceutical applications. Through specialized testing and custom blending and packaging solutions, ANGUS Life Sciences helps shape successful product launches and achieve faster time-to-market, while building in optimized cost effectiveness and efficiency.

PACKAGING

- cGMP IPEC-PQG
- Wide range of available packaging configurations

WAREHOUSING

- On-site storage options
- Ambient and controlled temperature capabilities

ANALYTICAL

- ICP/MS
- GC and HPLC
- ISO 9001:2015 certified

PURCHASING

- Formalized supplier qualification process
- Focus on sustainability
- Non-animal origin