

TOSOH CORPORATION

3-8-2, Shiba Minato-ku Tokyo 100-8023 JAPAN

April 06, 2015

Certificate of Analysis


We hereby certify that the following are analytical data of the product.

Commodity : Triethylenetriamine

Quantity : 8,800 lbs

Item	Unit	Specification	Result of Analysis
Appearance		: Clear †)	On standards
Color(APIA)		: max. 50	max. 10
Specific gravity(20/20° C)		: 0.970 ^α ~ ^β 0.984	0.979
Distillation-range-A)	°C	: min. 200	273
Distillation range B)	°C	: max. 200	283
Amine value	mgKOH / g	: 1410 ^α ~ ^β 1480	1451
Water content	%	:	0.02

A)5% Boiling Point B)Drying Point
†)Clear and free of suspended matters


M. Sugata
General Manager
Ethyleneamines
Organic Chemicals Division
Tosoh Corporation

TOSOH CORPORATION

3-8-2, Shiba Minato-ku Tokyo 105-8623 JAPAN

May 18, 2015

Certificate of Analysis

We hereby certify that the following are analytical data of the product.

Commodity : Triethylenetetramine

Quantity : 35,200 lbs

Item	Unit	Specification	Result of Analysis
Appearance		: Clear *)	On standards
Color (APHA)		: max. 50	max. 10
Specific gravity (20/20° C)		: 0.979 ≤ ~ ≤ 0.984	0.980
Purity (GC)	%	:	99.33
Distillation range A)	°C	: min. 260	278
Distillation range B)	°C	: max. 290	287
Amine value	mgKOH / g	: 1410 ≤ ~ ≤ 1480	1445
Water content	%	:	0.03

A) 5% Boiling Point B) Drying Point
*) Clear and free of suspended matters



M. Sugata
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