

Product Specification

TOMAMINE® PA-Series and DA-Series – Ether Amines

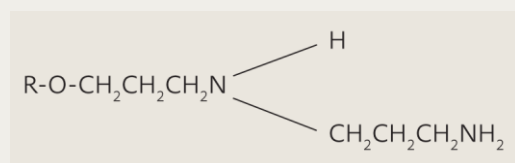
Description

The TOMAMINE® DA-Series synthetic ether amines are produced by the reaction of an aliphatic alcohol with acrylonitrile. These unique primary ether amines can be used as additives or building blocks for many other surfactants with broad applications. Ether amines have excellent low temperature liquidity.

Evonik produces primary amines with the following basic structure: R-O-CH₂CH₂CH₂NH₂

The TOMAMINE® DA-series synthetic ether diamines are produced by the reaction of an aliphatic alcohol with two moles of acrylonitrile. Like the TOMAMINE® DA-Series, these unique ether diamines can be used as additives or building blocks for many other surfactants with broad applications use and have excellent low temperature liquidity.

Evonik produces diamines with the following basic structure:



Applications

- Collectors for flotation process
- Specialty surfactants
- Replacement for fatty amines
- Chemical intermediates
- Corrosion inhibitors
- Lubrication additives
- Fuel additives
- Petroleum refining
- Metalworking fluids
- Textile chemical foaming agents
- Agricultural chemicals
- Cross linking agents for epoxy resins

Advantages

- Excellent liquidity
- High quality – no mono-substituted amide
- Ether linkage provides unique properties

Alkyl groups are commercially available from C6 to C18.

Performance Advantages

Table 1: TOMAMINE® PA-Series Ether Amines

| Product | R Equals | Description |
|-------------------|-----------------|-----------------------------------|
| TOMAMINE® PA-10L | C6H13 | Hexyloxypropyl amine |
| TOMAMINE® PA-12EH | Branched C8H17 | 2-Ethylhexyloxypropyl amine |
| TOMAMINE® PA-1214 | C8H17/C10H21 | Octyl/decyloxypropyl amine |
| TOMAMINE® PA-14 | Branched C10H21 | Isodecyloxypropyl amine |
| TOMAMINE® PA-16 | Branched C12H25 | Isododecyloxypropyl amine |
| TOMAMINE® PA-1618 | C12H25/C14H29 | Dodecyl/tetradecyloxypropyl amine |
| TOMAMINE® PA-17 | Branched C13H27 | Isotridecyloxypropyl amine |
| TOMAMINE® PA-1816 | C14H29/C12H25 | Tetradecyl/dodecyloxypropyl amine |
| TOMAMINE® PA-19 | C12H25/C15H31 | Linear alkyloxypropyl amine |
| TOMAMINE® PA-2220 | C18H37/C16H33 | Octadecyl/hexadecyloxypropyl |

Hazardous goods classification

Information concerning

- classification and labelling according to regulations for transport and for dangerous substances
- protective measures for storage and handling
- measures in case of accidents and fire
- toxicity and ecological effects

is given in our material safety data sheets.

Table 2: TOMAMINE® PA-Series Typical Properties

| PA-Series | PA-10L | PA-12 EH | PA-1214 | PA-14 | PA-16 | PA-1618 | PA-17 | PA-1816 | PA-19 | PA-2220 |
|----------------------------|--------|----------|---------|--------|--------|---------|--------|---------|-------|---------|
| Molecular weight | 165 | 200 | 207 | 225 | 253 | 260 | 265 | 265 | 272 | 350 |
| Amine value, min. | 315 | 280 | 260 | 243 | 215 | 200 | 200 | 200 | 195 | 150 |
| Mole % primary amine, min. | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Water, % max. | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Flash point, °C | 183 | > 200 | > 200 | > 200 | > 200 | > 200 | > 200 | > 200 | > 200 | > 200 |
| Specific gravity @ 25 °C | 0.84 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Gardner color, max. | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Pour point, °F | -30 | -30 | 20 | | | | | | | |
| Physical form @ 25 °C | liquid | liquid | liquid | liquid | liquid | liquid | liquid | paste | paste | paste |

Table 3: TOMAMINE® DA-Series Ether Amines

| Product | R Equals | Description |
|-------------------|-----------------|--|
| TOMAMINE® DA-1214 | C8H17/C10H21 | Octyl/decyloxypropyl-1,3-diaminopropane |
| TOMAMINE® DA-14 | Branched C10H21 | Isodecyloxypropyl-1,3-diaminopropane |
| TOMAMINE® DA-16 | Branched C12H25 | Isododecyloxypropyl-1,3-diaminopropane |
| TOMAMINE® DA-1618 | C12H25/C14H29 | Dodecyl/tetradecyloxypropyl-1,3-diaminopropane |
| TOMAMINE® DA-17 | Branched C13H27 | Isotridecyloxypropyl-1,3-diaminopropane |

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Table 4: TOMAMINE® DA-Series Typical Properties

| PA-Series | DA-1214 | DA-14 | DA-16 | DA-1618 | DA-17 |
|----------------------------|---------|--------|--------|---------|--------|
| Molecular weight | 290 | 295 | 325 | 340 | 330 |
| Amine value, min. | 385 | 375 | 335 | 330 | 325 |
| Mole % primary amine, min. | 49 | 49 | 49 | 49 | 49 |
| Water, % max. | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Flash point, °C | > 200 | > 200 | > 200 | > 200 | > 200 |
| Specific gravity @ 25 °C | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Gardner color, max. | 5 | 5 | 5 | 5 | 5 |
| Pour point, °F | 20 | -50 | -30 | 60 | -30 |
| Physical form @ 25 °C | liquid | liquid | liquid | liquid | liquid |

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