PFLAUMER

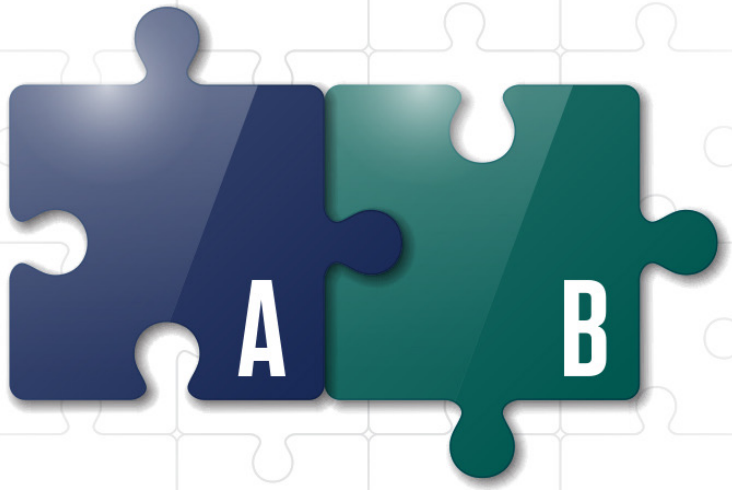
INTRODUCTION TO TERAMINE® A-136

Low Viscosity Cycloaliphatic Secondary Amine Chain Extender

THERE'S ALWAYS MORE TO SEE FROM PFLAUMER

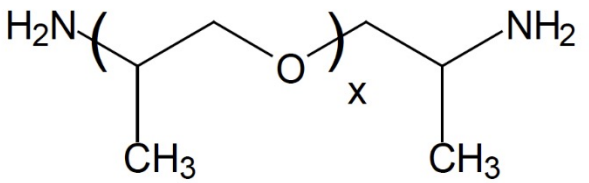
Background

When a two-component system (2K) [(Part A & Part B)] come together, the interaction is described as one between “soft” and “hard” segments. The proper blend of the two components is what provides the desirable physical properties such as elasticity, tensile strength, tear resistance, and elongation as a finished system.

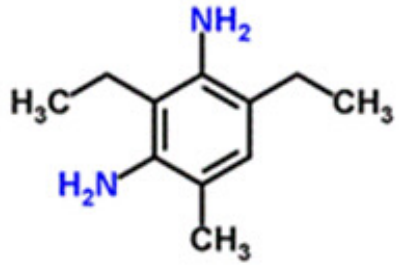


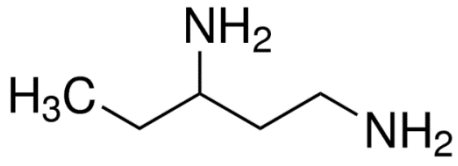
Chemical Structure

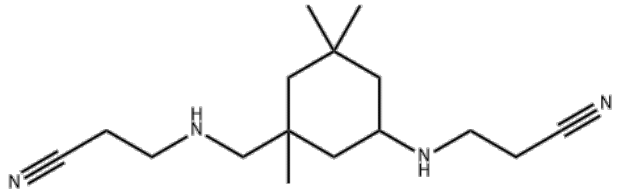
When we look at an organic chemical molecule, we see lines, C, N, H, numbers… What does it all mean?

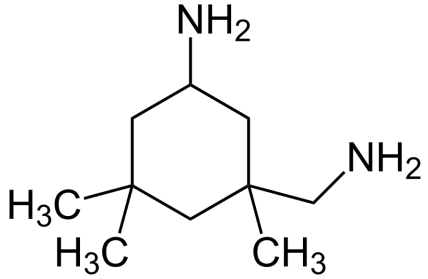


x ≈ 2.5









Chemical Structure

If you take away, for a moment, chemical molecules and replace them with pasta we see the same thing… different structure.

Chemical Structure

All similar, but their structure differs. Long thin strands (spaghetti) or a complex structure like Rotelle bring different characteristics to chef's recipe.

Chemical Structure

Differences in size and shape of pasta can be viewed like organic molecules where within a certain space, the pasta (molecule) will consume that space differently.

All of these jars hold an equal amount of mass.

Chemical Structure

- More space between the pasta (molecules).
- More molecules (pasta) within the confined space.
- How the molecules can move and orientate.

Chain Extenders

When one thinks of chain extenders, one might think of a necklace chain.

In a way, molecules in chemistry referred to as Chain Extenders can be thought of similarly.

Chain Extenders

Chain extenders are low molecular weight (short chain) molecules that alter the interactions of two component systems.

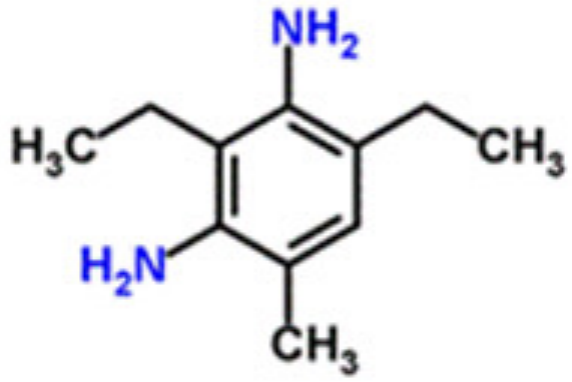
Again, the proper blend of two components is what provides the desirable physical properties of the finished system.

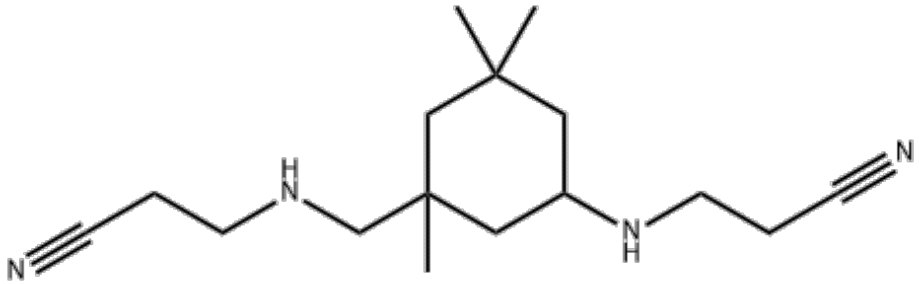
Modify the individual components – achieve a difference in their interaction.

TERAMINE® A-136

Teramine A-136 is a type of Chain Extender.

Of the two molecules that are types of chain extenders, what characteristics do you feel are offered with TERAMINE A-136?





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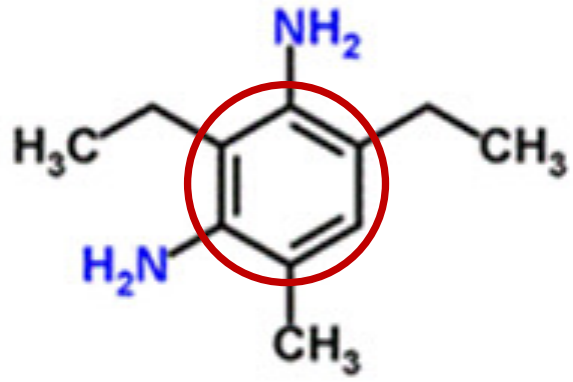
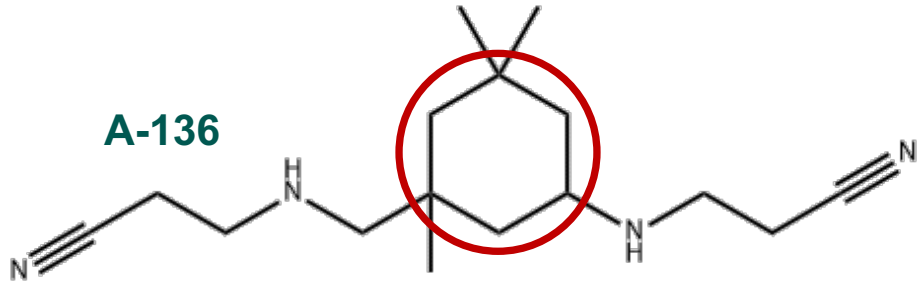
While both have a hexagon structure, A-136 does not contain alternating double bonds and single bonds, giving it a '**color stable characteristic**'.

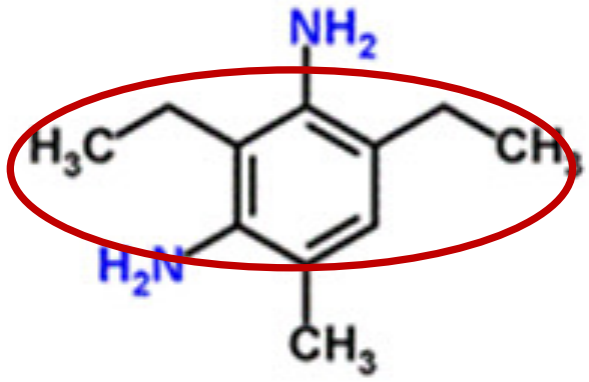


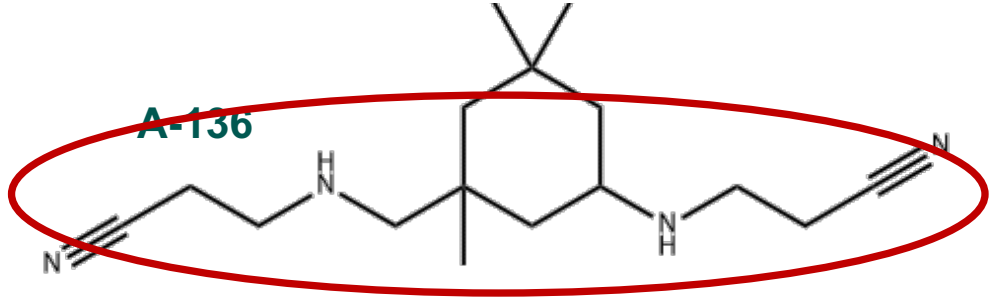


TERAMINE® A-136

The length of the A-136 is longer, extending the distance of other molecules used in combination with this chain extender, helping to **slow down the speed** of reaction for traditional polyurea systems.

- Better wet-out of substrate

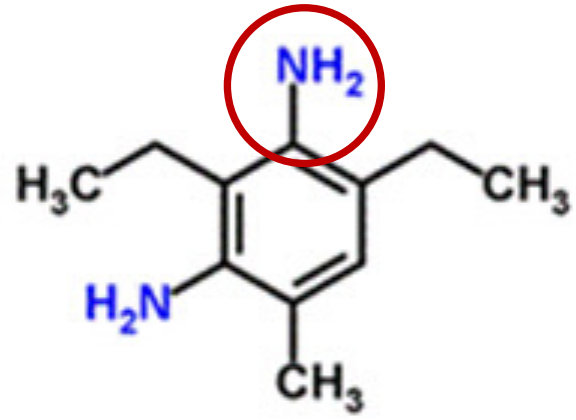


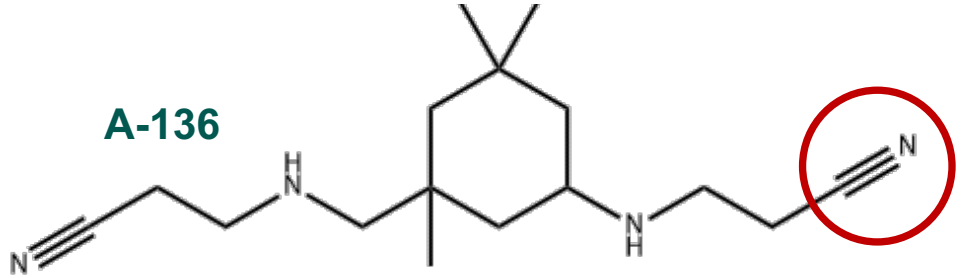


TERAMINE® A-136

When you see additional lines in a structure, think – stored up energy.

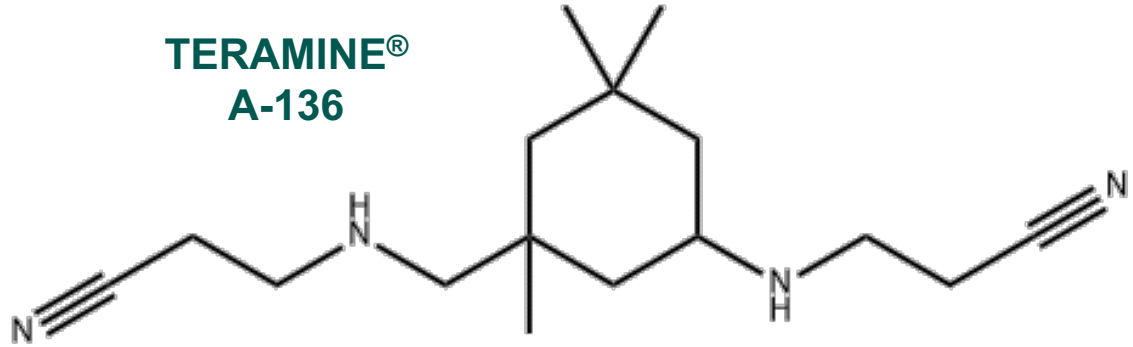
The A-136 has more stored up energy to contribute. This stored up energy, allows the **reaction to achieve completion earlier**.





TERAMINE® A-136

- Extends reaction times in polyurea systems.
- Provides UV Stability.
- Properties of final system are achieved faster.
- Provides a higher Heat Distortion Temperature (HDT)



TERAMINE® A-136

Properties of a polyurea system using Teramine® A-136:

	A-136	Alternate Amine
Flash Point (°C)	210	141
Gel time (seconds)	10 – 15	5 – 10
Hard set (minutes)	2 – 3	4 – 5
90% Property Development	4 hours	7 days
HDT (°C)	85	65

TERAMINE® A-136

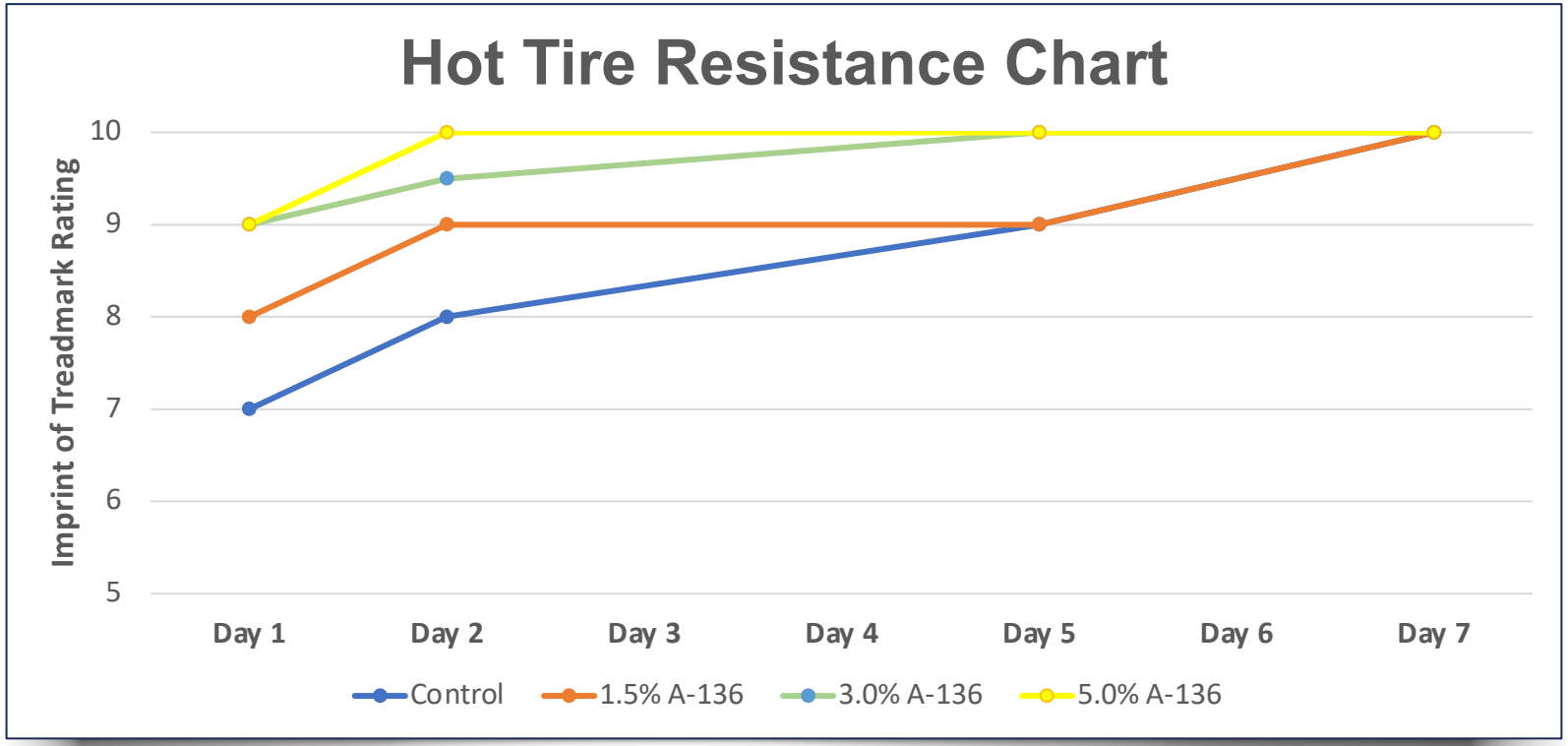
How does Teramine A-136 influence aspartic systems that already have slow reaction speeds?

Aspartic System	Gel Point	Tack Free	Dry Time	Dry Hard	Pot Life	Shore D	Index
Teraspartic 292 (50%) Teraspartic 277 (43%) (CONTROL) Tallicin 3001 (7%)	2 h	4 h	5 h	8.5 h	23 m	36	1.155
Control with 1.5% Teramine A-136	1.5 h	3.5 h	5.5 h	10 h	25 m	37	1.129
Control with 3.0% Teramine A-136	1.5 h	3.25 h	5.25 h	9.75 h	22 m	37	1.105
Control with 5.0% Teramine A-136	1.25 h	2.5 h	4 h	8.25 h	22 m	38	1.074

Teramine A-136 has been shown to improve adhesion to substrates.

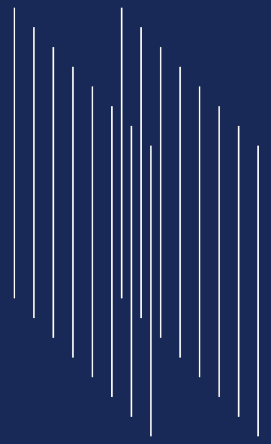
1:1 Blend by volume with Isocyanate: Teracure N-215 (57.43%); Teracure NX-19 (24.75%); Teraflex DME-200 (17.82%)
h = Hours m = minutes

TERAMINE® A-136



Potential sectors for using TERAMINE® A-136

Thank you!



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For questions and sales support:

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