Abstract
Consumers are paying much more attention to products that offer to help keep their hair healthy – that is, shiny, strong, long and smooth. However, many current styles can have damaging effects on hair. Because they involve colouring, chemical straightening, perming, or thermal styling, these styles require hair to be chemically, mechanically or thermally treated. Much more aware of the damaging effects of heat and chemicals on hair, consumers are looking for hair products that will allow today’s styling options, while achieving or maintaining healthy hair. This article will discuss the superior thermal protection abilities of two polymers – DynamX® polymer and Amphomer® polymer – as delivered from aerosol and non-aerosol styling products. The results of Scanning Electron Microscopy (SEM) image analyses and wetting force analyses on several polymers will demonstrate that the Amphomer® polymer provides superior protection of hair cuticles from flat ironing when compared to other technologies. The excellent film forming properties of the Amphomer® polymer create a thermally protective film, while also providing excellent hold and resistance to high humidity. DynamX® polymer provides good thermal protection, while providing a more durable, long-lasting, flexible hold, compared to acrylate technologies. DynamX® polymer films also create high gloss films that are low tack and perform well in curl definition and anti-frizz applications, in addition to thermal protection.

Introduction
Over the past five years, consumer desire for thermal protection of their hair has grown steadily. In response, introductions of products claiming to provide thermal protection are on the rise. Products such as shampoos, conditioners, hair treatments, and styling products have proliferated, most of them launched in North America followed by Europe, with the majority of the launches being hair styling products (Figure 1).

The technologies typically used in these hair styling products claiming thermal protection have been silicone-based and take on the form of creams, waxes, and pomades. Our company is proposing the use of film forming polymers for thermal protection delivered from the more popular market segments of aerosol and non-aerosol styling sprays. DynamX® and Amphomer® polymers are two film-forming polymers well known in the personal care industry for delivering hair styling and setting benefits from both aerosol and non-aerosol sprays, in addition to all day style retention.

DynamX® polymer (INCI: Polyurethane-14 (and) AMP-Acrylates Copolymer) is a urethane polymer developed to provide a film on hair that is glossy while giving flexible, durable hold with memory. The performance from a variety of different types of styling aids is well documented, including products that provide curl definition and anti-frizz. Overall, DynamX® polymer is great for generating long-lasting hairstyles that have a flexible look with natural feel.

Amphomer® Polymer (INCI: Octylacrylamide/Acrylates/Butylaminoethyl Methacrylate Copolymer) is an exceptionally hard-holding acrylate polymer with excellent film forming properties. Amphomer® films on hair provide outstanding stiffness and high-humidity style and curl retention. Compatible with different propellants, it can be used in both anhydrous and alcohol-free spray systems.

In addition to their hair styling advantages, both have been found to provide effective protection against the damaging effects to hair from thermal styling instruments such as flat irons.

Figure 1. Thermal protection product launches – 2005-2009
Source: Mintel GNPD