

PART 3 – AROMA CHEMICALS from PETROCHEMICAL FEEDSTOCKS

2 PROJECT HISTORY

Prior to 2001, AECI had a stated strategy of becoming a manufacturer and supplier of niche, higher value-added fine chemicals. Its strategy included transforming and growing the existing fine chemicals companies manufacturing t-butyl hydroquinone and lysine and establishing a new company for the production of aroma chemicals. As part of this strategy certain aroma and flavour fine chemicals were identified to form the basis of a new fine chemicals business to be developed. The two existing businesses for food antioxidants and animal nutrition together with the aroma business would have formed a fine chemicals cluster of critical size.

The strategy chosen was to select a basket of aroma chemicals for commercialisation on the following basis:

- Large volume aroma chemicals.
- Serving actively growing end-use markets.
- Having a low risk of substitution.
- Not requiring lengthy and costly registration processes for product approval by customers and government agencies.

Product selection would furthermore be based on the competitive advantage that could be created through an innovative technology and/or an advantageous access to local raw materials. The suite of Aroma and Fine Chemical products chosen for commercialisation was therefore based on the development of a novel and potentially competitive process for the production of p-hydroxybenzaldehyde (pHB) and p-anisaldehyde (pAA). This technology, using a mixed cresol stream as the key feedstock selectively converts p-cresol to pHB, a precursor for a range of other aroma chemicals, in the presence of m-cresol. This feature of the technology gives it a unique business advantage, as a number of commercially available mixtures of p-cresol and m-cresol could be used as feedstock. The separation of p-cresol and m-cresol from these mixtures by traditional means is a costly and capital-intensive process and results in pure isomers that are significantly more expensive than the individual isomers in the mixtures.

The products were all viewed as being strongly inter-related in terms of market areas and customers, thereby providing the opportunity to niche a basket of products to selected customers. Figure 6 depicts the products and their market synergies. This is a unique basket of products that would allow the start-up company to offer a number of strategic raw materials to the flavour and fragrance houses and other customers. It was anticipated that implementation of this Aroma Chemicals would provide the new fine chemical company with a competitive and sizeable business, with a turnover expected to grow to more than R500 million within a period of 5-10 years.

PART 3 – AROMA CHEMICALS from PETROCHEMICAL FEEDSTOCKS

FIGURE 6: Market Areas and Synergies of Proposed Product Portfolio

<i>Product</i>	<i>Precursor for other Aroma Chemicals</i>	<i>Flavour and Fragrance Ingredient</i>	<i>Personal Care Active Ingredient</i>	<i>Pharma. Active Ingredient</i>	<i>Precursor for Pharma. Active Ingredients</i>
<i>p</i> -hydroxybenzaldehyde (PHB)	√				√
<i>p</i> -anisaldehyde (PAA)	√	√	√		√
Raspberry Ketone (RK)		√			
<i>p</i> -anisyl alcohol		√			√
thymol	√	√	√		√
menthol		√	√	√	√
menthyl acetate		√			
racemic menthol			√	√	
vanillin		√			√
ethyl vanillin		√			
Trimethoxybenzaldehyde (TMB)					√

During 1998, AECI outsourced development on the aroma and flavour chemical technologies to the CSIR. In 2001, as part of its strategic decision to exit from its fine chemicals development programme, AECI decided to divest of its interests in fine chemicals production and research. The rights to the range of aroma and flavour fine chemical technologies under development were subsequently transferred to CSIR Bio/Chemtek and the two existing fine chemicals businesses were sold to management.