

# Forestall™

## Odour Neutraliser

Forestall is a highly effective air and fabric deodoriser against a wide range of malodours such as tobacco, sulphurous smells, kitchen and bathroom odour. The ingredient works by forming a complex with specific organic molecules and removing them from the air. Forestall is a liquid product, easy to handle and formulate with and is completely water soluble, making it ideal for use in most air and fabric deodorisers applications. It can be used with or without fragrance as required and is effective at low inclusion levels. It is a cost-effective product against odours with a long lasting effect leaving a pleasant fresh atmosphere. Formulation freedom combined with the extreme ease of handling and formulation simplicity makes Forestall the obvious choice for superior odour neutralisation.



## Features

- Effective against a wide range of malodours
- Highly effective at low concentrations
- Liquid, easy to formulate
- Usable with or without fragrance
- Soluble in water

## Applications

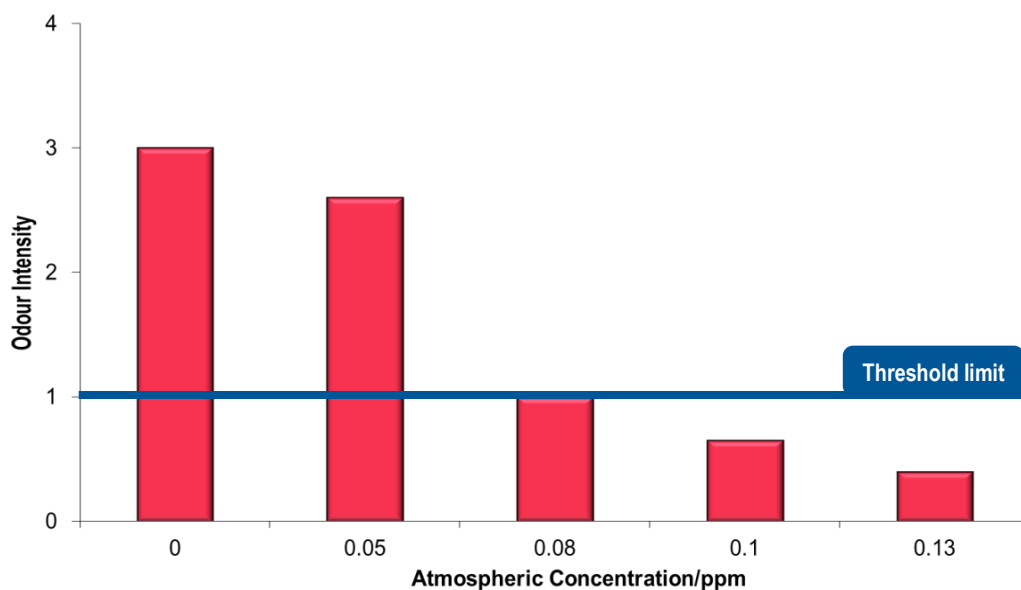
- Air deodorisers (hotels, cars, homes)
- Consumer deodoriser (animal care, carpets, laundry)
- Industrial odour control (sanitary landfill, livestock holdings, food processing plants)

## Typical Physical properties

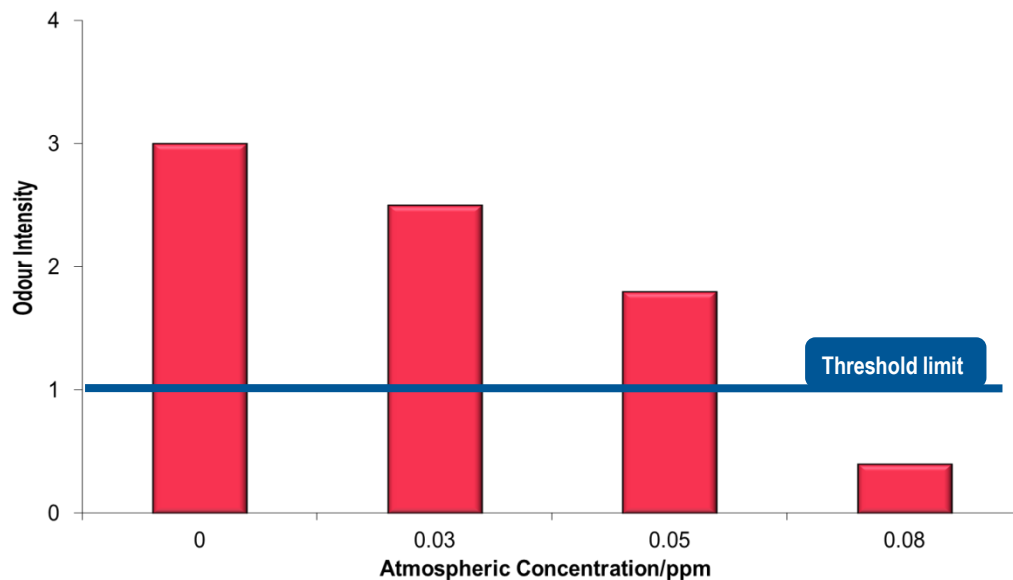
Appearance	Amber liquid with fruity odour
Appearance at usage levels	Water white
Actives	35%
pH at 25°C	7-8
Flash Point	>149°C
Specific Gravity at 25°C	Approx. 1

### Air Refresher

The effectiveness of Forestall as an odour neutraliser was assessed in independent tests using trained panellists. The tobacco smoke and amy mercaptan (“rotten egg”) odours, were introduced to a 1650 cubic feet room at three times the threshold level<sup>1</sup> for detection and fans were used to ensure uniform circulation. Forestall was introduced via a calibrated aqueous spray for 10 or 20 seconds. Fans were left running for 30 seconds before switching off and readmitting the panel testers to assess the odour level. Figure 1 and 2 demonstrate that Forestall is highly effective at low active concentration and rapidly reduces the odour to below the threshold limit, this is the lowest concentration at which the odour can be detected by humans. The atmospheric concentration is based on the 1% spray solution, hence, for a 0.1ppm atmospheric concentration the active atmospheric concentration is 0.001ppm.



**Figure 1: Effect of Forestall (1%) on tobacco odour**

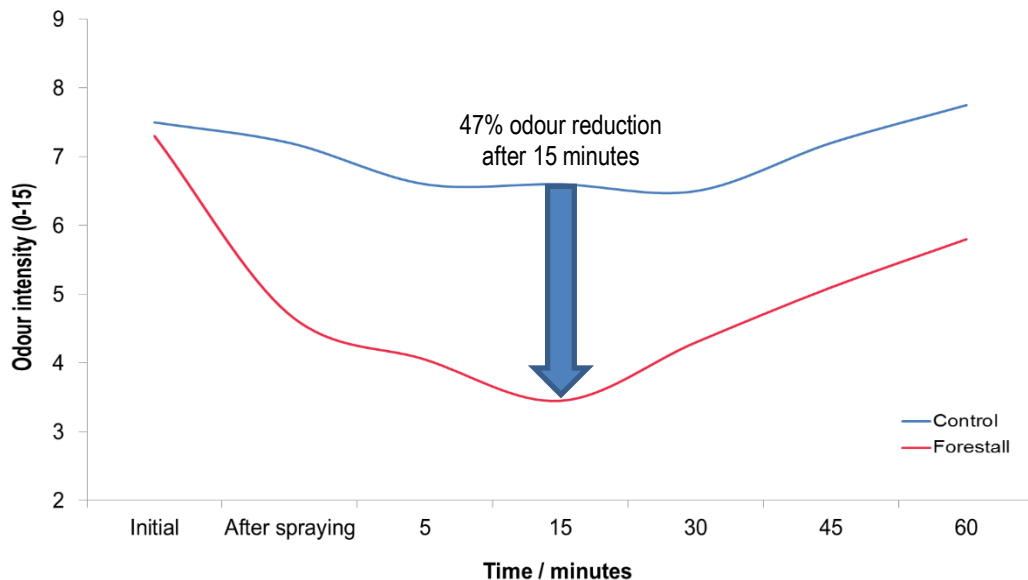


**Figure 2: Effect of Forestall (1%) on mercaptan odour**

<sup>1</sup> As defined by the flavour profile method of Cairncross & Sjostrom

**Kitchen odours**

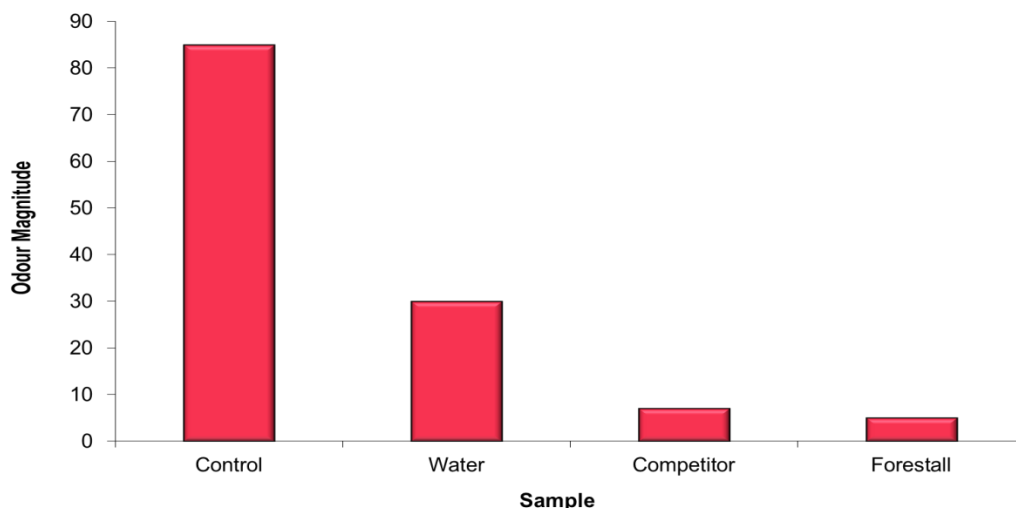
A separate test was used to assess the effectiveness of Forestall at eliminating kitchen odours. 1150g of onion and 185g of garlic were chopped and placed in an odour booth for 24 hours before the evaluation and were left in the booth throughout the test. The level of malodour was evaluated before spraying (initial), immediately after spraying and at 5, 15, 30, 45 and 60 minutes after spraying. Forestall has been shown to be highly effective against onion and garlic odours showing a reduction of 47% after 15 minutes.



**Figure 3: Forestall odour neutralisation effectiveness against onion and garlic odours**

**Fabric Refresher**

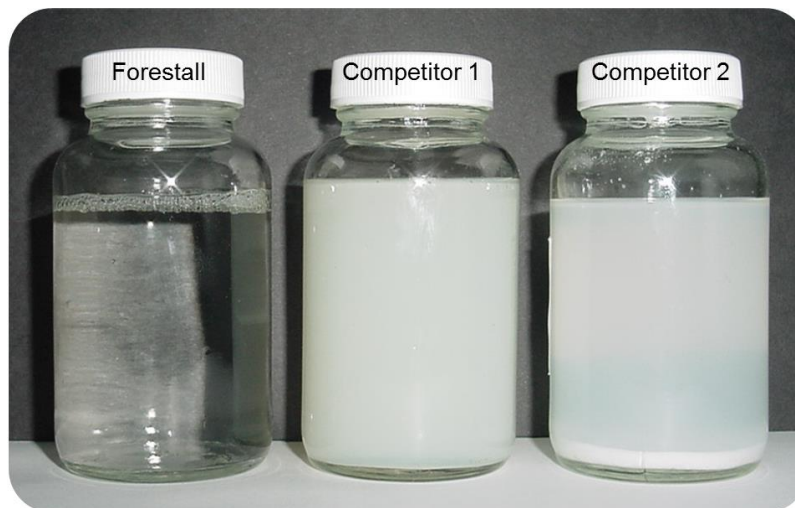
Forestall and the market leading competitor product were used to treat terry towels saturated with tobacco smoke. The towels were then sprayed with an aqueous solution of Forestall. The results were assessed by a panel of experts and at a 1% concentration Forestall displays equivalent odour neutralising performance to a widely used competitor product.



**Figure 4: Forestall fabric refresher effectiveness against tobacco odour**

### Solubility

A 1% solution of Forestall in water gives a clear liquid whereas a 1% solution of a competitor odour neutraliser forms a precipitate or creates a hazy white liquid and requires the addition of a solubiliser to achieve a clear solution. Odour neutralisers based upon Forestall can be produced quickly and easily in simple blending equipment without the need for heating and the use of an additional solubiliser.



**Image 1: Solubility of 1% Forestall in water vs. two different competitor's products**

### Formulating

Forestall is supplied as an easy-to-use liquid that can be used in conjunction with anti-microbials. It is stable in acids and bases and completely soluble in water without the need for an additional solubiliser. We have found no interaction with carbonylic groups (i.e. main component of fragrances) and can be used in a variety of applications without the restriction of patents.

- **Aerosol Air Freshener with Odour Neutraliser (water-based) - HC/AF/05-1**
- **Fabric Refresher with Odour Neutraliser – HC/AF/06**

### Health and safety

Forestall is considered to be an acceptable raw material for deodorisers in household, industrial and institutional applications. For more information please visit [www.croda.com/msds](http://www.croda.com/msds) for a safety data sheet.

### Non-warranty

The information in this publication is believed to be accurate and is given in good faith, but no representation or warranty as to its completeness or accuracy is made. Suggestions for uses or applications are only opinions. Users are responsible for determining the suitability of these products for their own particular purpose. No representation or warranty, expressed or implied, is made with respect to information or products including, without limitation, warranties of merchantability, fitness for a particular purpose, non-infringement of any third party patent or other intellectual property rights including, without limit, copyright, trademark and designs. Any trademarks identified herein are trademarks of the Croda group of companies.

©2020 Croda Europe Ltd