

Stabilisation Technology and Services

Applied Enzyme Technology Ltd manufactures and markets a range of enzyme/protein stabilisation kits. This is the result of 16 years of expertise in the field of protein stabilisation, there are 6 kits in total. The data supporting the composition of these kits has been accumulated from a combination of Smart Awards, European Commission funded projects, TSB grants and a multitude of client contract research projects.

The first kit is a generic customised kit, which contains 23 formulations (STK0001) and stabilises proteins in both the dry and solution states. The others are smaller tailor-made kits each containing 9 stabiliser formulations. They have been designed to stabilise enzymes in dry state (STKED), enzymes in solution (STKES), antibodies (STKAB) and one kit contains pharma-approved formulations (STKPH). A further kit has been added that provides a number of formulations required for freeze-drying proteins (STKFD).

These formulations meet the majority of the stability issues encountered by clients working both in industry and academia. The formulations are made up in a concentrated form thus allowing for use with different buffer compositions and pH criteria. To date AET has stabilised over 50 enzymes/proteins in both liquid and dry forms.



Applied Enzyme Technology Ltd. Protein Stabilisation Kit (product number STKED)

Stabilised Proteins

The enzyme/protein groups studied and successfully stabilised are listed below:

Unconjugated polyclonal and monoclonal antibodies
 Horseradish Peroxidase-Conjugated Antibodies
 Alkaline Phosphatase conjugated antibodies

Esterases
 Kinases

Hydrolases
 Lipases

Oxidoreductases
 Phosphatases

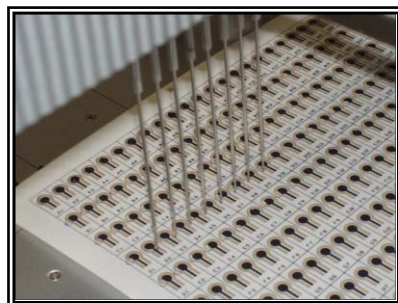
Peroxidases
 Proteases

Luciferase
 Oxidases

Most of the enzymes listed above have been stabilised individually. However, certain enzymes have been successfully combined to make stable working enzyme cocktails. Most contract research has led to the generation of stable enzyme formulations from between 50 days to over 18 months at temperatures of up to 50°C. The data generated by AET addresses both the issues of increased shelf life and the operational stability of the enzyme system in question.

By using our in-depth experience and knowledge, AET also offers a range of stabilised enzyme systems and stabiliser solutions as off-the-shelf products. These materials are manufactured within a tightly controlled environment. Our commitment to quality is highlighted by our adoption of ISO 9001:2000 and ISO 13485:2003 quality systems.

In addition to protein stabilisation, AET also offers biosensor - manufacturing expertise, with liquid dispensing expertise and sensor fabrication knowledge. We have launched our first biosensor system for the detection of pyruvate in onions together with our sister company Gwent Electronic Materials Ltd., we understand the difficulties that can be encountered with all aspects of biosensor fabrication and are therefore in a position to offer advice and consultancy services in this area.



Below are some Industrial examples which our stabilisation technology is currently being used and could be used in the future.

Agricultural Industry
 Bioremediation Industry
 Cosmetics Industry
 Human Healthcare
 Hygiene Industry

Biocatalysts Industry
 Biosensor Industry
 Diagnostics
 Household Products
 Pharmaceutical Industry