

# Biotechnology & Analytical services

Rubber Consultants  
TESTING • INNOVATION • SOLUTIONS  
since 1984

## Biotechnology Services

Rubber Consultants is an independent contract research organisation, part of one of the world's leading rubber research and development laboratories, the Tun Abdul Razak Research Centre (TARRC), the UK facilities of the Malaysian Rubber Board. Our state-of-the-art laboratories are fully equipped with a wide range of equipment and over 85 experienced staff.

Our biotechnology team can provide a broad range of biotechnological areas offering specialised services in:

- Molecular marker development and application
- Natural rubber latex products: allergens monitoring
- 2D gel based proteomics
- Bioinformatics
- NEW: Speciation and adulteration for meat species (as a part of Halal-compliant certification portfolio)

A wide range of both routine and specialised techniques are available for nucleic acid and protein studies. Following initial findings, our clients will be provided with advice and practical assistance in troubleshooting and results interpretation, as a part of our service.

TARRC's affiliation with the Malaysian Rubber Board and Ministry of Plantation Industries and Commodities has facilitated numerous collaborations with the biotech industry based in South-East Asia and worldwide. TARRC also has well established partnerships with leading research organisations in Europe.

## International Standard Testing for Natural Rubber Allergens/Proteins

- Protein content determination in NR products (UKAS accredited)
  - ASTM D5712-10
  - EN 455-3:2006
- Individual allergenic protein content in NR products
  - ASTM D7427-08
  - In-house developed methods: ELISA and Lateral Flow based diagnostics

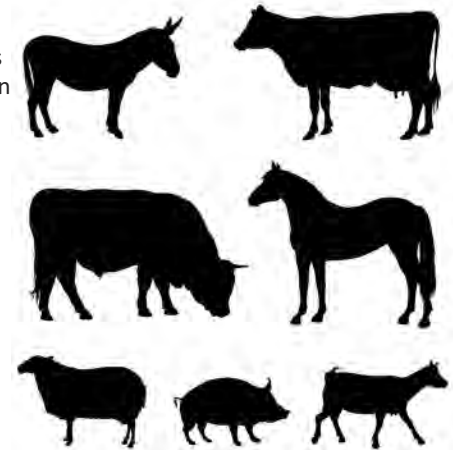
## Clonal ID Assessment for *Hevea brasiliensis*

Our clonal identification panel for *Hevea brasiliensis*, based on SNP (single nucleotide polymorphism) molecular markers, allows confirmation or assignment of clonal identity to planting materials as well as assessment of their uniformity. This is an ideal solution to ensure optimum performance of the plants in 5-7 years when they reach latex harvesting age. We are able to handle projects of different sizes with variable numbers of SNPs and samples through use of different genotyping platforms.

## Speciation and Adulteration

We can offer quantitative assessment and confirmation of species content in a range of products including food and pharmaceuticals. Currently, testing for three species is available: bovine (beef), ovine (mutton) and porcine (pork). More species will be added to the current panel in the near future. Species-specific tests can be developed on request.

Being affiliated with Malaysia - recognised as the global leader for Halal certification - we are able to use this portfolio of test methods for Halal authentication of a variety of products.



## Analytical Services

To complement our biotechnology services, we have the support of Rubber Consultants' materials characterisation laboratories. Analysis is one of the major tools for successful problem solving and trouble-shooting, especially when conducted by experts with the experience to interpret the results. The techniques can be applied to any commodities where structure, trace elements, contamination and packaging are the subject of investigation. The TARRC analytical laboratories are equipped with a wide range of instrumentation and experienced staff. This allows for the analysis of a wide range of materials from low molecular weight volatiles to complex molecules, mixtures and polymers.

We can provide certification of compliance with European regulations. Our analytical expertise is recognised extensively in the polymer sector and the pharmaceutical industry, and our Consultancy reputation has been built up over 30 years.

## Main Areas of Expertise

- Micro-structure analysis
- Polymer experience with respect to packaging
- Compliance with European Directives
- Contamination investigation
- Pesticide residue analysis
- Biomass composition
- Oils and plasticisers
- Working to GMP (pharmaceutical standards)

## Pharmaceutical standard analysis

- Method development
- Method validation
- Substances of special concern (PAH, nitrosamines and MBT)
- Extractables or migration testing (eg from packaging to product)
- Formaldehyde analysis

## Oils analysis

- Saturated, unsaturated, polyunsaturates fatty acid levels
- Biofuels analysis
- Aromatic oils analysis

## Instrumental techniques

- Spectroscopy: FTIR, FTIR-ATR, PIR, UV, NMR
- Chromatography: GC-MS, GC-FID, GC-NPD, GC-NCD, TLC, HPLC, GPC, IC, LC-MS, GC-HID, Headspace analysis
- Thermal Analysis: TGA, TGIR, DSC
- Microscopy: light, SEM, STEM, TEM, AFM, ultramicrotomy
- Elemental: SEM-edx, ICP, IC

## Typical areas of work

- Reject product testing
- Checking against specification
- Compliance with European requirements
- Method development for regulatory bodies
- Trace metal analysis
- Wax characterisation
- Preservatives / antioxidants
- Surface finishes
- Residual processing chemicals

## Packaging analysis

- Analysis of existing materials or development products
- Compliance testing with European / US food contact regulations
- Leachables and extractables
- Migration testing



Most analytical methods are approved by UKAS to ISO17025  
Site-wide accreditation to ISO9001

