

RdH
Riedel-de Haën™

BJa
Burdick
& Jackson™

Flk
Fluka™

+ HwD = Ch²

Honeywell
authorized
distributor

Choice²

Discover the Perfect Formula

Susan Massie
Marketing Director
Greyhound Chromatography

**HONEYWELL RESEARCH
CHEMICALS PORTFOLIO**

Honeywell


Greyhound
CHROMATOGRAPHY
AND ALLIED CHEMICALS

Agenda

- **Honeywell**
- **Honeywell Research Chemicals**
- **Product Lines Overview**
- **Products for Analytical Chemistry**
- **Products for Oligonucleotide Synthesis**

Honeywell Overview

NYSE: HON | ~970 sites | ~110,000 employees | Morris Plains, N.J. headquarters | Fortune 100

For a more detailed overview on Honeywell click [here](#).

Aerospace



Our products are used on virtually every commercial and defense aircraft platform worldwide and include aircraft propulsion, cockpit systems, satellite communications, and auxiliary power systems.

Building Technologies



Our products, software, and technologies are in more than 10 million buildings worldwide, helping customers ensure their facilities are safe, energy efficient, sustainable, and productive.

Performance Materials and Technologies



We develop advanced materials, process technologies, automation solutions, and industrial software that are revolutionizing industries around the world.

Safety and Productivity Solutions



We improve enterprise performance and worker safety and productivity with our scanning and mobile computers, software, warehouse automation solutions, and personal protective equipment.

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Aligned to Key Global Macro Trends

Honeywell Research Chemicals



Pioneer with **200** years
of history in producing chemicals
in two plants:
Seelze, Germany
Muskegon, Michigan, USA



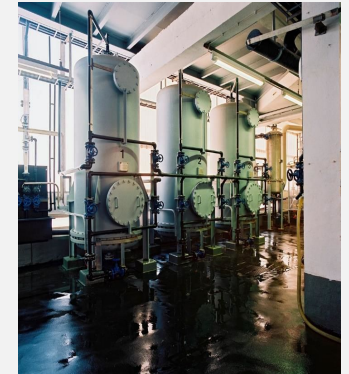
Producer of worldwide
known and leading brands



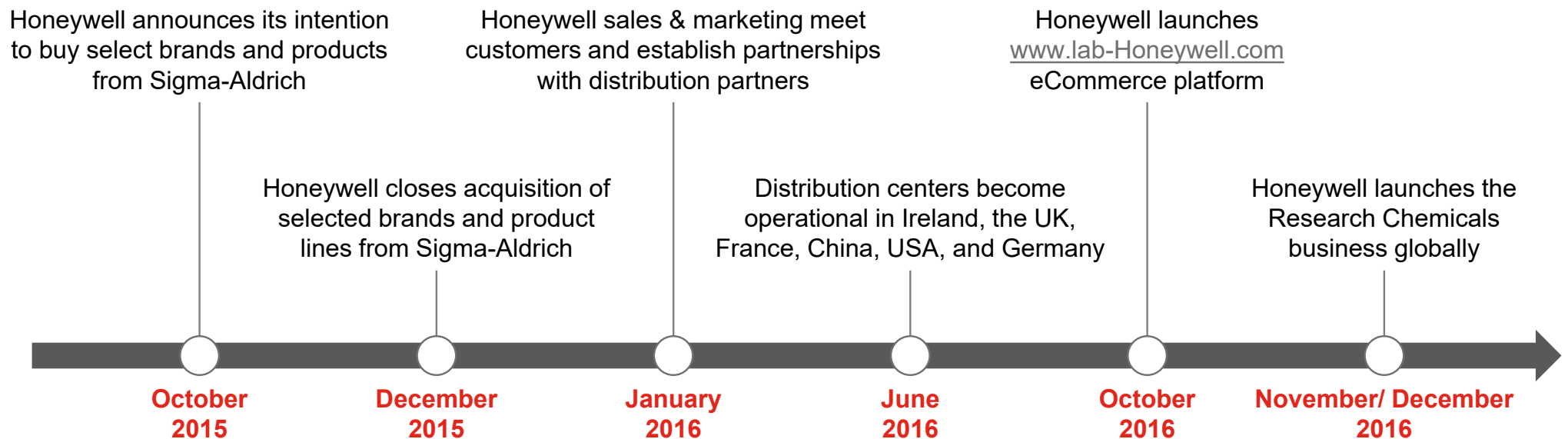
A global portfolio of
than **6,000** references for all
needs in analytical and chemistry
labs

Our Strengths

- Leader in high-purity solvents and Hydranal™ reagents
- Best quality material on the market
- Competitively priced direct from producer
- Exceptional lot-to-lot consistency
- Production and QC
- Flexibility in custom packaging and blending, including a highly developed returnable containers program
- Bulk availability
- Broad offer



Research Chemicals Business | Background Timeline



Honeywell Research Chemicals

Brand	Honeywell Burdick & Jackson™	Honeywell Riedel-de Haën™	Honeywell Fluka™	Honeywell
Overview	Solvents & Reagents High-purity solvents and reagents	Solvents High-purity solvents	Analytical Reagents Karl Fischer titration, standards, acids, bases, salts, and pH buffers	Performance Grade Solvents and inorganics for general laboratory use
Product Lines	<ul style="list-style-type: none"> • BioSyn™ - DNA/RNA and peptide synthesis • B&J Brand - Chromatography, spectrometry, synthesis and combinatorial chemistry • B&J GC² - Gas chromatography • Anhydrous - Organic synthesis, organometallic, and combinatorial chemistry • Honeywell LabReady™ Blends • B&J Purified Plus 	<ul style="list-style-type: none"> • Chromasolv™ - Chromatography (LC-MS, UHPLC, GC and GC headspace) • Spectroscopy - IR and UV-Vis applications • ACS and Pharmacopoeia Grade - Industrial and pharmaceutical applications • TraceSELECT™ Solvents - Trace and low-metal content analysis 	<ul style="list-style-type: none"> • Acids/bases, salts • Analytical Standards • Buffers and Volumetric Solutions - Concentrates and ready-to-use • Hydranal™ - Reagents and standards for Karl Fischer titration • TraceSELECT™ Inorganics - Trace and low-metal content analysis • Consumables for purification (SPE, QuEChERS) 	<ul style="list-style-type: none"> • Solvents - ACS specific use (HPLC), ACS general use, histology, and reagent grade for other industrial applications • Inorganics - Inorganic chemistry including essential acids and bases, salts, metals and elements, and reagents for chemical reactions
Services & Technology	<p>Returnable Container Program for B&J solvents and BioSyn™ Solvents and Blends</p> <p>Honeywell LabReady™ Blends customer-specific blends using proprietary, closed-loop blending technology</p>	<p>Returnable Container Program reduces carbon footprint while saving time and money</p> <p>Honeywell LabReady™ Blends customer-specific blends using proprietary, closed-loop blending technology</p>	<p>Special Packaging Technology ampoules, bottles, VOLPAC containers</p>	<p>Scalable to Production Requirements Supply in larger quantities</p>

Two Production Plants



Seelze
Germany

> 485,000 m²

TS 16949, ISO 9001, ISO 14001, OSHA 18001,
and ISO 50001 accredited

Hydranal™ reagent production

Chromasolv™ and TraceSelect™ solvents production

Volumetric Solutions production

Returnable Container Program



Muskegon
Michigan, USA

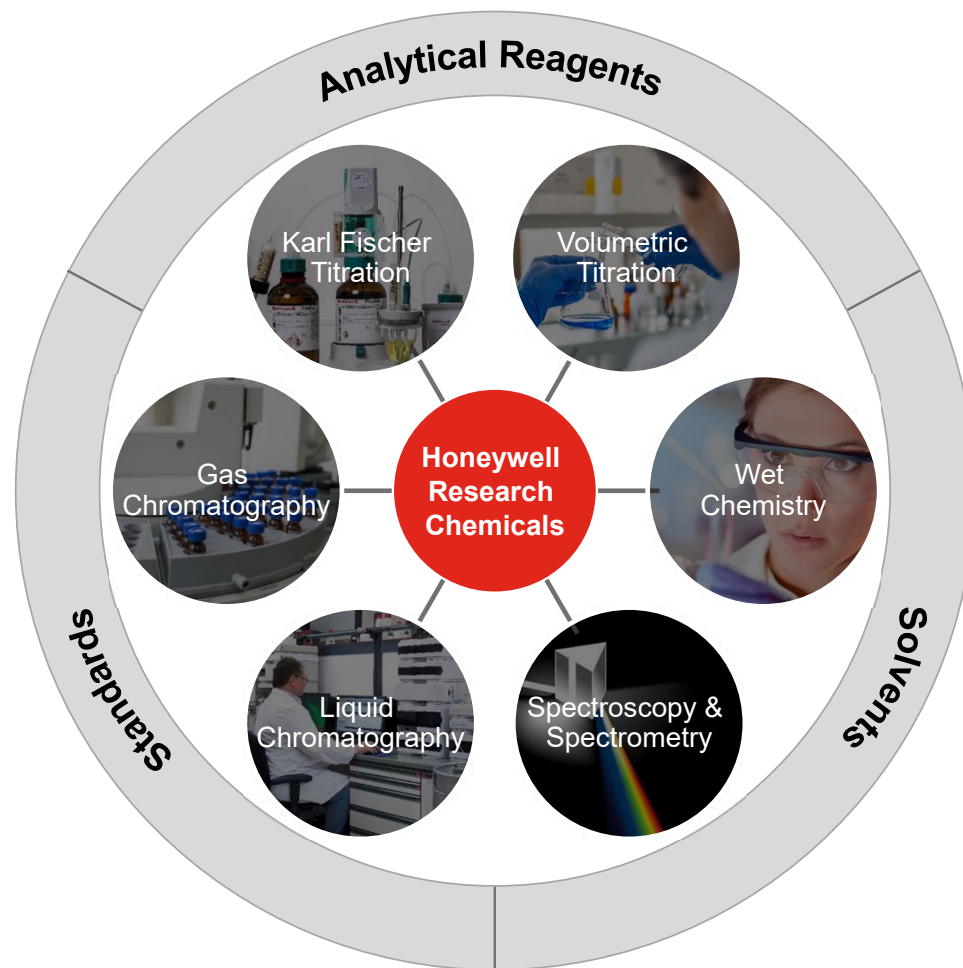
> 34,000 m²

ISO 900, ISO 14001 certified

Burdick & Jackson™ and
Chromasolv™ solvents production

Returnable Container Program

High-quality Reagents and Chemicals for Analytical Applications



Gas Chromatography (GC)

Solvents

- In various grades for various applications
- A variety of packaging solutions, including stainless steel returnable drums
- Made to the original specifications that guarantee exceptional purity and lot-to-lot consistency

Burdick & Jackson™ solvents

- High purity solvent for various applications (Low trace impurities, low water content and low particulate levels)

Burdick & Jackson™ GC² solvents

- Solvents for environmental analysis such as capillary gas chromatography applications requiring trace analysis at or below the part-per-billion level
- Ideal for EPA protocols.

Chromasolv™ solvents for residue analysis of pesticides and other low-volatile substances using GC, e.g. dioxins, furans and PCB

- Non-volatile matter and water content specified

Chromasolv™ GC-headspace solvents

- For identification/quantification of residual solvents in pharmaceuticals using GC-headspace methods
- Meet USP, Ph. Eur. and ICH requirements
- GC headspace application tested
- Packed under inert gas for longer shelf life



Honeywell
Riedel-de Haën™

Honeywell
Burdick & Jackson™



Honeywell

Liquid Chromatography (HPLC, LC-MS, UHPLC)

Solvents

- In various grades for various applications
- A variety of packaging solutions, including stainless steel returnable drums
- Made to the original specifications that guarantee exceptional purity and lot-to-lot consistency

Chromasolv™ solvents

- for HPLC, gradient grade, Plus for HPLC, LC-MS, LC-MS Ultra, UHPLC

Burdick & Jackson™ solvents

- for ACS specific use, HPLC, and LC-MS

Honeywell LabReady™ Blends

- for HPLC and LC-MS

Additives and Buffers

- Specifically tested for HPLC applications
- Many varieties of solvents, acids and salts

Analytical Standards

- For different industry specific applications
- Technical service

Eluent additives for HPLC, LC-MS, and UHPLC

- Suitable for LC-MS applications



Honeywell
Riedel-de Haën™

Honeywell
Burdick & Jackson™

Honeywell
Fluka™



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Volumetric Titration

High-quality Reagents, Solutions and Indicators for Volumetric Titration

Volumetric Standard Solutions

- Acids, bases or salts for acidimetric, alkalimetric, redox and precipitation titration methods
- Ready-to-use solutions in plastic bottles or in 5 or 10 L VOLPAC™ containers
- Concentrates in ampoules or bottles and can be used directly after dilution

pH Buffers

- Buffers ranging from pH 1.00 – 13.00
- Color-coded buffers pH 4 (red), 7 (green), 9 (blue), 10 (violet)
- High precision buffers according to DIN 19266
- Available as ready-to-use solutions and concentrates
- Certified pH buffers, traceable to SRM from NIST

Indicators

- Powders and solutions for acid-base, adsorption, redox and metal titration, as well as indicators for non-aqueous titration

Reagents for Complexometry

- Aminopolycarboxylic acids (EDTA/NTA analogs)
- Masking agents



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Karl Fischer Titration

- Methanol and ethanol-based KF reagents free from pyridine
- The world-leading product line for Karl Fischer water titration with 40 years of experience
- [Lab Report data base](#) with more than 700 application examples
- Hydranal Center for Excellence provides technical support

Reagents for Volumetric Titration

- One component and two component reagents
- Hydranal-Methanol Rapid containing accelerators to speed up titration with one-component reagents
- Hydranal E-Type reagents based on ethanol for safer titrations
- Hydranal-Medium K for the determination of water in aldehydes and ketones

Auxiliaries

- Solubilizers, buffers, drying agents, Moisture Test Kit

Reagents for Coulometric Titration

- Hydranal-Coulomat A-type or E-type reagents (anolytes)
- Hydranal-Coulomat CG reagents (catholytes)

Water Standards

- Exactly determined water content for titer determination, monitoring analysis precision and accuracy, and validation and control of KF titrators
- Hydranal™ Certified Reference Materials (CRMs) traceable to other internationally accepted standards



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Wet Chemistry

Consistent analytical reagents and laboratory essentials

Acids/Bases

- Basic Honeywell-branded grades to ultra-pure TraceSELECT™ grades for sample decomposition, metal dissolution, or sample mineralization

Salts

- Basic Honeywell-branded grades to ultra-pure TraceSELECT™ grades

Adsorbents

- Silica gels, molecular sieves, activated alumina, activated carbon, ion exchange resins, charcoal, vermiculite, sand, etc.
- For chromatography, purification, drying agent, desiccant, catalysis

Reagents and Solvents for ACS and/or Pharmacopeia Testing

- Acids, basis, salts, volumetric solutions and solvents meet specifications of the corresponding monograph



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Spectroscopy & Spectrometry

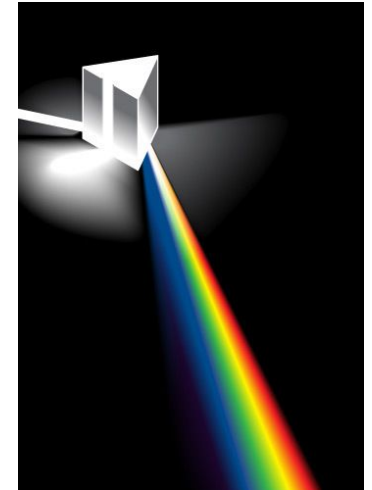
Solvents and reagents providing the purity you need for your spectroscopy and spectrometry applications

Solvents & Reagents

- For IR and UV-Vis applications
- High spectral purity (minimal fluorescence, water, evaporation residue, acidity, alkalinity)

TraceSelect™ Acids, Bases and Salts

- For sample digestion or dissolution for
 - Inductively coupled plasma atomic emission spectroscopy (ICP-OES)
 - Inductively coupled plasma mass spectrometry (ICP-MS)
 - Flame atomic absorption spectroscopy (AAS)
 - Graphite furnace AAS
- High purity reagents with very low metal content for ultra-trace analysis at ppb and even ppt levels

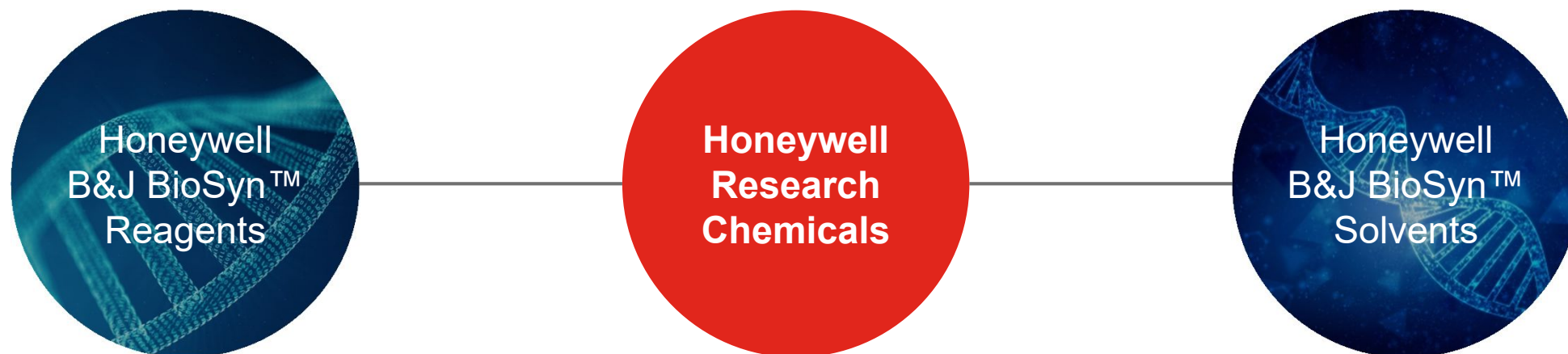


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Honeywell B&J Reagents and Solvents for Oligo and Peptide Synthesis – NA/ APAC only



BioSyn™ Reagents

- Reagents for DNA and RNA synthesis including reagents for:
 - Deblocking
 - Activation
 - Capping
 - Oxidation
 - Washing
- Submicron filtration used to minimize particle contamination
- Package sizes from 1L glass bottles to 1,250L bulk containers
- Packaging is designed to facilitate direct connection to popular synthesizers
- Various standard formulations available and in-house capability to make custom reagents and formulations
- High purity reagents to ensure improved over-all yield of final products



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BioSyn™ Solvents or Related Products

- Submicron filtration used to minimize particle contamination
- Package sizes from 1L glass bottles to 1,250L bulk containers
- Packaging is designed to facilitate direct connection to popular synthesizers
- Manufactured to have low water content
- Solvents and reagents have been use tested in various oligonucleotide synthesis and production applications
- A variety of neat solvent specially manufactured for biosynthesis applications
 - Acetonitrile
 - Dichloromethane
 - Pyridine
 - Tetrahydrofuran
 - Triethylamine
 - Trifluoroacetic acid



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Greyhound Chromatography Company Profile

Company Description

Greyhound Chromatography has been supplying high quality chromatography consumables to Research and Analysis laboratories around the world for 39 years. Greyhound's Managing Director, Paul Massie, founded the company which operates from its UK facility, located in Birkenhead, Merseyside.

Greyhound Chromatography is a leading global manufacturer and distributor of the highest quality chromatography columns, certified reference standards and materials, research chemicals, solvents, reagents, and laboratory consumables available today. Greyhound supplies scientists working in all disciplines, including HPLC and Gas Chromatography.

Greyhound Chromatography is probably the leading single source of chromatography products and chemical standards anywhere in the world.

Chief Chromatographic Techniques Supported

All chromatography techniques including:

- Chiral chromatography
- Derivatives analysis
- Environmental analysis
- GC and GC-MS
- LC-MS
- HPLC and UHPLC
- ICP, ICP-MS
- AA (Atomic Adsorption) spectroscopy
- Ion chromatography
- SPE and SPME
- TLC



Major Products/Services

Analytical syringes, balances and scales, organic/inorganic reference standards and materials, diluters and dispensers, fittings, flash cartridges, gas filters, gas purifiers/filters/traps, gas regulators, GC columns, GC derivatisation reagents, GC ferrules; seals & inlet liners, HPLC columns; pumps, column heaters & lamps, maintenance tools, membrane filters, TLC consumables, pipettes and tips, prep silica, reagents, solvents, solvent safety solutions, SPE cartridges, syringe accessories, syringe filters, tubing, valves, vials/caps/septa, vial accessories, well plates.

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WWW.GREYHOUNDCHROM.COM

Greyhound Chromatography Company Profile

Markets Served

Testing reference standards, chemicals, solvents and reagents, laboratory consumables, for analysis and research & development laboratories:

Cosmetics

Environmental: water, air, soil

Energy: electricity, gas, solar, atomic, renewables

Food

Fragrance: including additives to consumer products

Chemical: anything classed as a chemical that is present in the manufacture or use of consumables

Petrochemical: oil, gas, petroleum

Pharmaceutical: testing standards

Facilities

Greyhound Chromatography operates from a warehouse and office facility, with 5,500 sq ft capacity. Approx. 3,500 sq ft are used as warehouse storage with temperature controlled zones that include refrigerators and a freezer for product storage. Temperatures are recorded and monitored. An external temperature-controlled container is used to store flammable liquids

Honeywell

Greyhound Chromatography and Allied Chemicals

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Discover the Perfect Formula

Thank You

Distributor's Name: Greyhound Chromatography Email:sales@greyhoundchrom.com Phone No: +44 (0) 151 649 4000

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