

# **HIGH STAKES.** **HIGH STANDARDS.**

## **Pharmaceutical & Biopharmaceutical Workflow Solutions**

When health and lives are at stake, use high-quality chemicals from a proven manufacturer.



**Honeywell**

**THOMMEN FURLER**





# PLACE YOUR TRUST IN THE SUREST HANDS

When health and lives are at stake, laboratories performing analyses should use top-quality testing products provided by a proven manufacturer.

Honeywell Research Chemicals understands that quality is crucial at every step of your pharmaceutical & biopharmaceutical workflows. With analytical technologies and associated costs advancing at a record pace, the need for high-quality chemicals is greater than ever before.

Per a recent Forbes article on pharmaceutical price transparency, it can take up to 12 years and \$2.6 billion to bring a single new drug to market.<sup>[1]</sup> With such high stakes, we know that our standards

must be high. That's why we've developed an analytical chemical portfolio delivering the highest purity reagents and solvents, and reliable analytical standards, to save time and reduce costs at every stage of your workflows.

From drug discovery and development to quality control, you're in the surest hands with Honeywell Research Chemicals. We've taken the guesswork out of choosing the right chemicals for each stage of your workflows with our comprehensive product guides and helpful resources.

## PHARMACEUTICAL & BIOPHARMACEUTICAL WORKFLOW SOLUTIONS FOR:



Oligonucleotide  
Synthesis



Water  
Determination



Chromatography



Elemental  
Impurities

1. Turner, Grace-Marie (May 21, 2019). HHS Marches Forward to Enhance Drug Price Transparency. *Forbes*



# OLIGONUCLEOTIDE SYNTHESIS WORKFLOW SOLUTIONS



Critical to advancing drug discovery processes

Honeywell Burdick & Jackson™ BioSyn™ solvents and reagents have low impurity profiles and ensure higher yields.

The Burdick & Jackson™ BioSyn™ product line from Honeywell Research Chemicals offers a wide range of DNA and RNA synthesis solvents and reagents for each step of the oligonucleotide synthesis cycle. This includes reagents for deblocking, activation, capping, and oxidation in various formulations, as well as acetonitrile with extremely low water content.

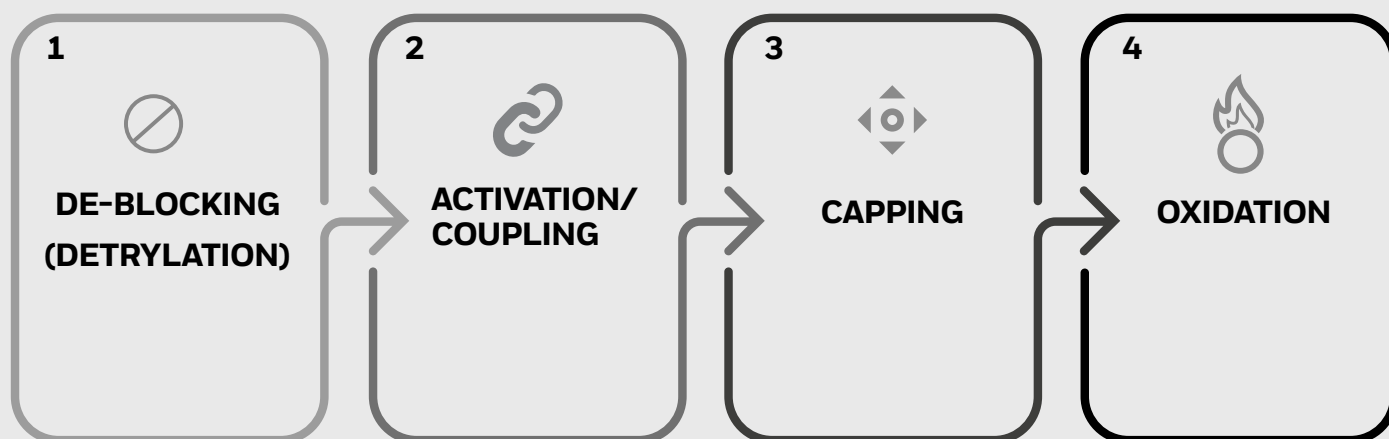
Scientists using the BioSyn product line will enjoy the following benefits:

- High-purity reagents employing consistent quality manufacturing standards to ensure improved overall yield of the final product
- Filtered to minimize particulate contamination (0.2 micron for oxidation reagents and 0.1 micron for all other reagents)
- Available in package sizes from 1L glass bottles to 1.250L bulk containers suitable for lab-scale oligonucleotide synthesis through production levels
- Packaging designed to facilitate direct connection to popular synthesizers
- Custom solutions provided to meet specific customer needs (e.g., custom reagent formulations to address special packaging requirements)

In addition, Honeywell offers a variety of Riedel-de Haën™ branded, septum-sealed, moisture-sensitive anhydrous solvents suitable for many biotech and biopharma applications.



## WORKFLOW



# OLIGONUCLEOTIDE SYNTHESIS WORKFLOW PRODUCT GUIDE

	PRODUCT CATEGORY	PRODUCT NUMBER	BRAND	PRODUCT DESCRIPTION	PACKAGING SIZE
STEP 1	De-blocking (dehydration)	BR605	Burdick & Jackson BioSyn	3% Trichloroacetic acid in Dichloromethane (w/v)	4x2L, 4x2.5L, 4x4L, 20L NP11
	De-blocking (dehydration)	SR622, CS622	Burdick & Jackson BioSyn	3% Dichloroacetic acid in Dichloromethane (v/v)	4x4L, 20L NP11, 200L SSPDS
	De-blocking (dehydration)	SR674, BR674	Burdick & Jackson BioSyn	3% Dichloroacetic acid in Toluene (v/v)	4x4L, 20L NP11, 200L SSPDS
STEP 2	Activation/Coupling	SR731, BR731, BC731	Burdick & Jackson BioSyn	0.30M 5-Benzylthio-1H-tetrazole, 0.5% NMI, 99.5% Acetonitrile (BMI)	2x1L, 4x4L, 20L NP11, 200L SSPDS
	Activation/Coupling	SR721, BR721, BC721	Burdick & Jackson BioSyn	0.25M 5-Ethylthio-1H-tetrazole in Acetonitrile (ETT)	2x1L, 4x2L, 4x2.5L, 4x4L, 20L NP11, 56L SSPDS, 200L SSPDS
	Activation/Coupling	BR725, BC725	Burdick & Jackson BioSyn	0.50M 5-Ethylthio-1H-tetrazole in Acetonitrile (ETT)	2x1L, 4x2.5L, 20L NP11, 56L SSPDS, 200L SSPDS
	Activation/Coupling	BR726, BC726	Burdick & Jackson BioSyn	0.60M 5-Ethylthio-1H-tetrazole in Acetonitrile (ETT)	2x1L, 4x4L, 56L SSPDS, 200L SSPDS
STEP 3	Capping	BR640	Burdick & Jackson BioSyn	10% Acetic Anhydride, 10% 2,6-Lutidine, 80% THF (v/v/v)	4x2L, 4x2.5L, 4x4L
	Capping	BR641	Burdick & Jackson BioSyn	10% Acetic Anhydride, 10% Pyridine, 80% THF (v/v/v)	4x2L, 4x2.5L, 4x4L
	Capping	SR639, CS639	Burdick & Jackson BioSyn	10% Acetic Anhydride, 90% THF (v/v)	4x4L, 200L SSPDS
	Capping	SR644, BC644	Burdick & Jackson BioSyn	20% Acetic Anhydride, 30% 2,6-Lutidine, 50% Acetonitrile (v/v/v) <sup>3</sup>	20L NP11, 200L SSPDS
	Capping	BR650	Burdick & Jackson BioSyn	16% N-Methylimidazole, 84% THF (v/v)	4x2L, 4x2.5L, 4x4L
	Capping	BR651	Burdick & Jackson BioSyn	10% N-Methylimidazole, 90% THF (v/v)	4x2L, 4x2.5L, 4x4L
	Capping	SR653, CS653	Burdick & Jackson BioSyn	10% N-Methylimidazole, 10% Pyridine, 80% THF (v/v/v)	4x4L, 200L SSPDS
	Capping	BR654, SR554	Burdick & Jackson BioSyn	20% N-Methylimidazole, 80% Acetonitrile (v/v)	2x1L, 4x2.5L, 20L NP11, 56L SSPDS, 200L SSPDS
STEP 4	Oxidation	BR663	Burdick & Jackson BioSyn	0.02M Iodine, 2% Water, 20% Pyridine, 78% THF (v/v/v)	4x2L, 4x2.5L, 4x4L
	Oxidation	BR664	Burdick & Jackson BioSyn	0.05M Iodine, 10% Water, 90% Pyridine (v/v)	4x2.5L, 4x4L, 20L NP11, 56L SSPDS, 200L SSPDS
	Oxidation	BR665	Burdick & Jackson BioSyn	0.02M Iodine, 10% Water, 0.4% Pyridine, 89.6% THF (v/v/v)	4x4L
	Oxidation	BR666, SR666, BR666	Burdick & Jackson BioSyn	0.02M Iodine, 10% Water, 20% Pyridine, 70% THF (v/v/v)	4x2L, 4x2.5L, 4x4L, 20L NP11, 56L SSPDS, 200L SSPDS
	Oxidation	BR761, BN761, BC761	Burdick & Jackson BioSyn	0.05M Iodine, 10% Water, 10% Pyridine, 80% Acetonitrile (v/v/v)	2x1L, 4x4L, 20L NP11, 56L SSPDS, 200L SSPDS

SOLVENTS AND RELATED PRODUCTS	PRODUCT NUMBER	BRAND	PRODUCT DESCRIPTION	PACKAGING SIZE
	BB017, BN017, BC017	Burdick & Jackson BioSyn	Acetonitrile	4x4L, 20L NP11, 56L SSPDS, 200L SSPDS, 1250L SSPDS
	BB301, BN301	Burdick & Jackson BioSyn	Dichloromethane	4x4L, 20L NP11, 56L SSPDS, 200L SSPDS
	BB333, BN333, BC333	Burdick & Jackson BioSyn	Pyridine	2.5L, 4x4L, 20L NP11, 56L SSPDS, 200L SSPDS
	BB343, BN343, BC343	Burdick & Jackson BioSyn	Tetrahydrofuran	4x4L, 20L NP11, 56L SSPDS, 200L SSPDS
	BB359	Burdick & Jackson BioSyn	Triethylamine	2x100mL, 6x1L
	BB360	Burdick & Jackson BioSyn	Trifluoroacetic acid	12x50mL, 6x500mL
	66214	Riedel-de-Haën	Acetonitrile Anhydrous	100mL, 1L, 2.5L
	66204	Riedel-de-Haën	Dichloromethane Anhydrous stabilised with amylene	100mL, 1L
	66213	Riedel-de-Haën	Pyridine Anhydrous over molecular sieve	100mL, 1L, 2.5L
66205	Riedel-de-Haën	Tetrahydrofuran Anhydrous unstabilised	100mL, 1L, 2.5L	

Product and packaging availability may vary from country to country.

# CHROMATOGRAPHY WORKFLOW SOLUTIONS



Essential for verifying product purity

Honeywell solvents, blends and standards provide low impurity and high consistency.

With Honeywell chromatography solvents, prepared and customizable solvent blends, eluent additives, and analytical standards, pharmaceutical and biopharmaceutical labs can utilize high-quality products throughout the entire chromatography workflow with the following benefits:

- High purity for cleaner chromatograms
- Low lot-to-lot variation for better consistency
- Reduced time and cost to obtain correct and reliable results the first time

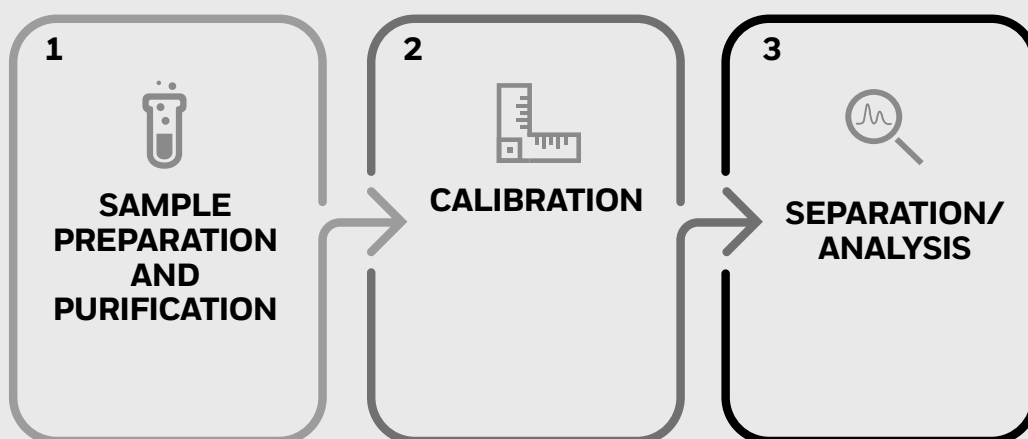
Honeywell solutions are particularly advantageous for demanding applications such as LC-MS and UHPLC-MS that rely on low baseline noise to achieve the required sensitivity.

Honeywell Research Chemicals has over 200 years of expertise in high-purity solvents, produced in two ISO 9001-certified production plants in the USA and Germany. To meet the most challenging analytical requirements, customers can choose from a wide portfolio of solvents, Honeywell LabReady™ blends from Riedel-de Haën™ and Burdick & Jackson™, as well as eluent additives and analytical standards from Fluka™.

Honeywell Fluka analytical standards include an expanding portfolio of high-quality organic reference materials, produced according to ISO 9001 and suitable for a wide range of industries and applications. Every vial comes complete with a printed certificate of analysis (CoA) and is eligible for free expert technical support—ensuring you have the information needed to quickly start your analysis and pass relevant audits.



## WORKFLOW



# CHROMATOGRAPHY WORKFLOW PRODUCT GUIDE

	PRODUCT CATEGORY/ HIERARCHY	PRODUCT NUMBER	BRAND	PRODUCT DESCRIPTION	PACKAGING SIZE
STEP 1	LC-MS & UHPLC Solvents	34965	Riedel-de Haën	2-Propanol, CHROMASOLV™ LC-MS	1L, 2.5L, 4X2.5L, 6X1L
	LC-MS & UHPLC Solvents	34967	Riedel-de Haën	Acetonitrile, CHROMASOLV™ LC-MS	250mL, 1L, 2.5L, 4X2.5L, 6X1L, 45L
	LC-MS & UHPLC Solvents	34999	Riedel-de Haën	Heptane, CHROMASOLV™ LC-MS	1L, 2.5L
	LC-MS & UHPLC Solvents	34986	Riedel-de Haën	Hexane, CHROMASOLV™ LC-MS	1L, 2.5L, 4X2.5L, 6X1L
	LC-MS & UHPLC Solvents	34966	Riedel-de Haën	Methanol, CHROMASOLV™ LC-MS	1L, 2.5L, 4X2.5L, 6X1L
	LC-MS & UHPLC Solvents	39253	Riedel-de Haën	Water, CHROMASOLV™ LC-MS	250mL, 500mL 1L, 2.5L, 4L, 4X4L
STEP 2	Reference Materials	R1357	Fluka	β-Estradiol 3-methyl ether solution 100 µg/mL in acetonitrile	2mL
	Reference Materials	R1766	Fluka	Oxytetracycline hydrochloride	100mg
	Reference Materials	R1000	Fluka	Reserpine-(3',4',5'-trimethoxy-d9)	10mg
STEP 3	GC Headspace Solvents	51779	Riedel-de Haën	Dimethyl sulfoxide, CHROMASOLV™, GC-Headspace tested, ≥99.9%	1L, 2.5L
	GC Headspace Solvents	44901	Riedel-de Haën	N,N-Dimethylacetamide, CHROMASOLV™, GC-Headspace tested, ≥99.9%	1L
	LC-MS & UHPLC Additives	14265	Fluka	Formic acid, LC-MS Ultra, Eluent additive for UHPLC-MS	1mL, 2mL, 50mL
	LC-MS & UHPLC Additives	14264	Fluka	Trifluoroacetic acid, LC-MS Ultra, Eluent additive for UHPLC-MS	1mL, 2mL, 50mL
	LC-MS & UHPLC Solvents	34967	Riedel-de Haën	Acetonitrile, CHROMASOLV™ LC-MS	250mL, 1L, 2.5L, 4X2.5L, 6X1L, 45L
	LC-MS & UHPLC Solvents	14262	Riedel-de Haën	Methanol, CHROMASOLV™ LC-MS Ultra, tested for UHPLC-MS	1L, 2L
	LC-MS & UHPLC Solvents	14263	Riedel-de Haën	Water, CHROMASOLV™ LC-MS Ultra, tested for UHPLC-MS	1L, 2L
	LC-MS Solvents	LC015	Burdick & Jackson	Acetonitrile, B&J Brand™ LC-MS, for LC-MS and HPLC, >99.9%	1L, 2.5L, 4L
	LC-MS Solvents	LC323	Burdick & Jackson	Isopropyl Alcohol, B&J Brand™ LC-MS, for LC-MS and HPLC, >99.9%	1L, 2.5L, 4L
	LC-MS Solvents	LC365	Burdick & Jackson	Water, B&J Brand™ LC-MS, for LC-MS and HPLC	1L, 2.5L, 4L

Product and packaging availability may vary from country to country.

In addition to the products listed above, we offer technical and reagent grades, as well as grades for ACS, HPLC, preparative liquid chromatography, column chromatography, GC, and spectrophotometry.





# WATER DETERMINATION WORKFLOW SOLUTIONS



Crucial for confirming water content

Hydranal™ reagents provide best-in-class accuracy and unparalleled technical support

Karl Fischer titration (KFT) is the preferred technique for water determination due to its superior accuracy, increased speed and selectivity, and practical advantages over other methods.

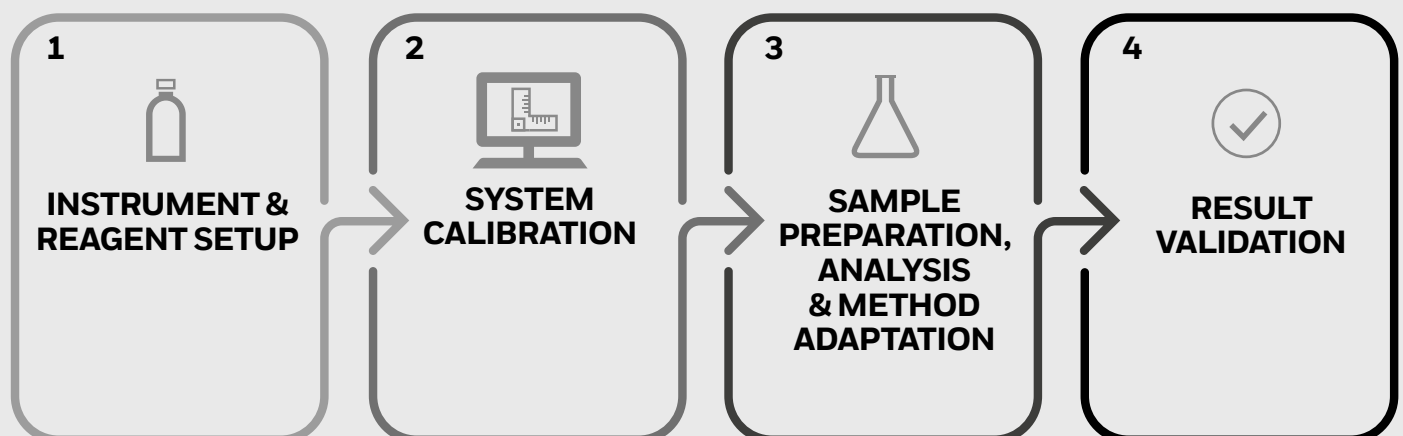
Today, however, the lack of skilled chemists with experience using the KFT technique can undermine its effectiveness and the quality of results. This situation can have serious consequences in the biopharmaceutical field where water content impacts drug stability, crystal structure, powder flow, dissolution rate, and polymer film permeability in solid dosage forms. It can also lead to growth of microorganisms if unchecked. Errors in analysis often result in costly production stoppages and health risks.

Honeywell's Karl Fischer titration product line, Hydranal™, focuses on optimizing the water determination workflow. Hydranal reagents provide the following advantages:

- Brand name synonymous with the highest standard of accuracy and reliable lot-to-lot consistency
- Unique in offering special media for customer-specific needs (largest portfolio in KFT segment)
- Unparalleled technical support to tackle challenging samples



## WORKFLOW





# WATER DETERMINATION WORKFLOW PRODUCT GUIDE

	PRODUCT CATEGORY/ HIERARCHY	PRODUCT NUMBER	BRAND	PRODUCT DESCRIPTION	PACKAGING SIZE
STEP 1	One-Component Volumetry	34805	Fluka	HYDRANAL-Composite 5, Titrating agent for volumetric one-component KF titration (methanol free)*	500 mL, 1 L, 2.5 L
	One-Component Volumetry	34806	Fluka	HYDRANAL-Composite 2, Titrating agent for volumetric one-component KF titration (methanol free)*	500 mL, 1 L, 2.5 L
	One-Component Volumetry	34827	Fluka	HYDRANAL-Composite 1, Titrating agent for volumetric one-component KF titration (methanol free)	500 mL, 1 L
	One-Component Volumetry	34741	Fluka	HYDRANAL-Methanol dry, Medium for volumetric one-component KF titration	1 L, 2.5 L
	One-Component Volumetry	37817	Fluka	HYDRANAL-Methanol Rapid, Medium for accelerated volumetric one-component KF titration	500 mL, 1 L, 2.5 L
	Two-Component Volumetry	34801	Fluka	HYDRANAL-Titrant 5, Titrating agent for volumetric two-component KF titration (methanol-based)*	500 mL, 1 L, 2.5 L
	Two-Component Volumetry	34811	Fluka	HYDRANAL-Titrant 2, Titrating agent for volumetric two-component KF titration (methanol-based)	500 mL, 1 L, 2.5 L
	Two-Component Volumetry	34800	Fluka	HYDRANAL-Solvent, Medium for volumetric two-component KF titration (methanol-based)	500 mL, 1 L, 2.5 L
	Coulometry	34836	Fluka	HYDRANAL-Coulomat AG, Anolyte for coulometric KF titration (methanol-based), for cells with and without diaphragm	500 mL, 1 L
	Auxiliaries - Drying Agents	34241	Fluka	HYDRANAL-Molecular sieve 0.3 nm, Drying agent for air and gases for KF titration	250 g
	Auxiliaries - Drying Agents	34788	Fluka	HYDRANAL-Humidity absorber, Drying agent for air and gases (with indicator) for KF titration	500 g, 1 kg
STEP 2	Certified Reference Materials	34425	Fluka	HYDRANAL-CRM Water Standard 10.0, Certified reference material for KF titration, produced under DIN EN ISO 17034 accreditation, water content 10 mg/g = 1.0%, exact value on CoA	80 mL (10 x 8 mL)
	Certified Reference Materials	34426	Fluka	HYDRANAL-CRM Water Standard 1.0, Certified reference material for KF titration, produced under DIN EN ISO 17034 accreditation, water content 1 mg/g = 0.1%, exact value on CoA	40 mL (10 x 4 mL)
	Certified Reference Materials	34424	Fluka	HYDRANAL-CRM Sodium Tartrate Dihydrate, Certified reference material for KF titration, produced under DIN EN ISO 17034 accreditation, water content ~15.66%, exact value on CoA	10 g
	Reference Materials	34446	Fluka	HYDRANAL-Water Standard 0.1 PC, Standard for KF titration, water content 0.1 mg/g = 0.01%, exact value on report of analysis	40 mL (10 x 4 mL)
	Reference Materials	34693	Fluka	HYDRANAL-Water Standard KF-Oven, 140-160°C, Standard for KF oven check, water content ~5.0%, exact value on report of analysis	10 g
STEP 3	One-Component Volumetry - Special Media	34816	Fluka	HYDRANAL-Composite 5 K, Titrating agent for volumetric one-component KF titration in aldehydes and ketones (methanol free)*	500 mL, 1 L, 2.5 L
	One-Component Volumetry - Special Media	34698	Fluka	HYDRANAL-Medium K, Medium for volumetric one-component KF titration in aldehydes and ketones (methanol free)	1 L
	Coulometry - Special Media	34820	Fluka	HYDRANAL-Coulomat AK, Anolyte for coulometric KF titration in ketones (methanol free), preferred for cells with diaphragm	500 mL
	Coulometry - Special Media	34821	Fluka	HYDRANAL-Coulomat CG-K, Catholyte for coulometric KF titration in ketones (methanol free)	50 mL (10 x 5 mL)
	Coulometry - Special Media	34843	Fluka	HYDRANAL-Coulomat AG-H, Anolyte for coulometric KF titration in long-chained hydrocarbons (methanol-pentanol-based), preferred for cells with diaphragm	500 mL
	Coulometry - Special Media	34840	Fluka	HYDRANAL-Coulomat CG, Catholyte for coulometric KF titration (methanol-based)	50 mL (10 x 5 mL)
	Auxiliaries - Solubilizers	34724	Fluka	HYDRANAL-Formamide dry, Solubilizer for KF titration	1 L
	Auxiliaries - Buffers	34804	Fluka	HYDRANAL-Buffer for Acids, Liquid buffer medium for KF titration in acidic samples (based on imidazole)	500 mL
	Auxiliaries - Buffers	37859	Fluka	HYDRANAL-Buffer for Bases, Liquid buffer medium for KF titration in alkaline samples (based on salicylic acid)	1 L
STEP 4	Certified Reference Materials	34425	Fluka	HYDRANAL-CRM Water Standard 10.0, Certified reference material for KF titration, produced under DIN EN ISO 17034 accreditation, water content 10 mg/g = 1.0%, exact value on CoA	80 mL (10 x 8 mL)
	Certified Reference Materials	34426	Fluka	HYDRANAL-CRM Water Standard 1.0, Certified reference material for KF titration, produced under DIN EN ISO 17034 accreditation, water content 1 mg/g = 0.1%, exact value on CoA	40 mL (10 x 4 mL)
	Certified Reference Materials	34424	Fluka	HYDRANAL-CRM Sodium Tartrate Dihydrate, Certified reference material for KF titration, produced under DIN EN ISO 17034 accreditation, water content ~15.66%, exact value on CoA	10 g
	Reference Materials	34446	Fluka	HYDRANAL-Water Standard 0.1 PC, Standard for KF titration, water content 0.1 mg/g = 0.01%, exact value on report of analysis	40 mL (10 x 4 mL)
	Reference Materials	34693	Fluka	HYDRANAL-Water Standard KF-Oven, 140-160°C, Standard for KF oven check, water content ~5.0%, exact value on report of analysis	10 g

\*RFID enabled for Metrohm and Mettler Toledo titrators.

Product and packaging availability may vary from country to country.

# ELEMENTAL IMPURITIES WORKFLOW SOLUTIONS



Vital for identifying trace contaminants

TraceSelect™ solvents and reagents enable increased precision and reliability.

Understanding the elemental composition of your raw materials, active pharmaceutical ingredients (APIs), excipients, and formulations helps to ensure product quality and purity. Trace metals are known to be toxic and can affect the stability of a formulation by catalyzing degradation. Quality control during the manufacturing process is also very important and should be monitored regularly. The presence of trace species at very low levels and samples with poor solubility can make elemental analysis difficult.

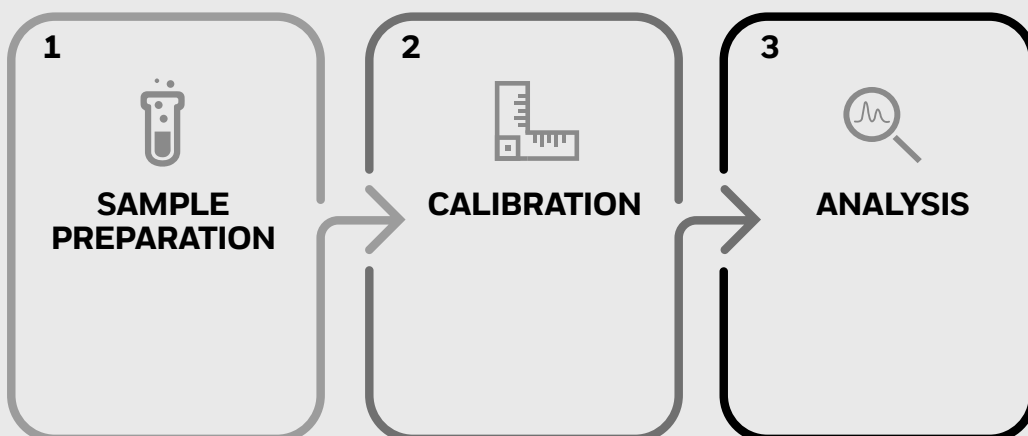
Honeywell's TraceSelect™ solvents and reagents are supplied in high-quality leach-resistant bottles to ensure long-term purity.

Our certificates of analysis list up to 80 individual metal and anion traces. TraceSelect reagents and solvents and certified reference materials provide the following benefits:

- Reliable Fluka™ certified reference materials supplied with complete documentation and traceable to NIST standard reference materials
- Meets requirement for high-purity acids and bases with low contamination levels to improve reliability and accuracy
- Enables detection of impurities in the ppt and ppb detection range



## WORKFLOW



# ELEMENTAL IMPURITIES WORKFLOW PRODUCT GUIDE

	PRODUCT CATEGORY/ HIERARCHY	PRODUCT NUMBER	BRAND	PRODUCT DESCRIPTION	PACKAGING SIZE
STEP 1	Acids for TraceAnalysis	06454	Fluka	Formic acid, TraceSELECT™, for trace analysis, ≥88.0%	250mL
	Acids for TraceAnalysis	96208	Fluka	Hydrochloric acid, TraceSELECT™ Ultra, for ultratrace analysis, 30-35%	250mL, 500mL, 1L
	Acids for TraceAnalysis	08256	Fluka	Hydrochloric acid, TraceSELECT™, for trace analysis, ≥30%	100mL, 500mL, 1L, 2.5L
	Acids for TraceAnalysis	2650	Fluka	Nitric acid, TraceSELECT™ Ultra, for ultratrace analysis, 65-71%,	250mL, 500mL, 1L, 2L
	Acids for TraceAnalysis	84385	Fluka	Nitric acid, TraceSELECT™, for trace analysis, ≥69.0%	500mL, 6x500mL, 1L, 2.5L, 5L
	Acids for TraceAnalysis	77239	Fluka	Sulfuric acid, TraceSELECT™ Ultra, for ultratrace analysis, ≥95%	250mL, 500mL, 1L
	Acids for TraceAnalysis	84716	Fluka	Sulfuric acid, TraceSELECT™, for trace analysis, ≥95%	500mL, 1L
	Trace Analysis Salts	09725	Fluka	Ammonium chloride, TraceSELECT™, for trace analysis, ≥99.9995% (metals basis)	25g, 100g
	Trace Analysis Salts	9979	Fluka	Ammonium sulfate, TraceSELECT™, for trace analysis, ≥99.9999% (metals basis)	100g
	Trace Analysis Salts	38979	Fluka	Sodium chloride, TraceSELECT™, for trace analysis, ≥99.999% (metals basis)	500g
STEP 2	Certified Reference Materials	E4012	Fluka	Calcium AAS Standard, 1000mg/L Ca in HCl 2%	100mL, 500mL
	Certified Reference Materials	E1513	Fluka	Chromium VI Cr <sup>6+</sup> ICP Standard, 1000mg/L in water	100mL
	Certified Reference Materials	E4022	Fluka	Copper AAS Standard, 1000mg/L Cu in HCl 2%	100mL, 500mL
	Certified Reference Materials	E2112	Fluka	EPA 6010 - Interference Check Standard 5 - 5 components; Ca 6000ug/mL, Fe 5000ug/mL, Mg 3000ug/mL, Al 1200ug/mL, Na 1000ug/mL in HNO <sub>3</sub> 5%	100mL
	Certified Reference Materials	E4027	Fluka	Iron AAS Standard, 1000mg/L Fe in HCl 2%	100mL, 500mL
	Certified Reference Materials	E3025	Fluka	Magnesium (Mg <sup>2+</sup> ) Standard for Ion Chromatography, 1000mg/L in water	100mL
	Certified Reference Materials	E1026	Fluka	Mercury ICP Standard, 1000mg/L Hg in HNO <sub>3</sub> 10%	100mL
	Certified Reference Materials	E1405	Fluka	Nickel ICP & ICP-MS Standard, 10mg/L Ni in HNO <sub>3</sub> 2%	100mL
	Certified Reference Materials	E1037	Fluka	Sodium ICP Standard, 1000mg/L Na in water	100mL
	Certified Reference Materials	E3048	Fluka	Sulfite (SO <sub>3</sub> <sup>-</sup> ) Standard for Ion Chromatography, 1000mg/L in water	100mL
	Certified Reference Materials	E1051	Fluka	Sulphur ICP Standard, 1000mg/L S in water	100mL
STEP 3	Acids for TraceAnalysis	06454	Fluka	Formic acid, TraceSELECT™, for trace analysis, ≥88.0%	250mL
	Trace Analysis Salts	09725	Fluka	Ammonium chloride, TraceSELECT™, for trace analysis, ≥99.9995% (metals basis)	25g, 100g
	Trace Analysis Salts	9979	Fluka	Ammonium sulfate, TraceSELECT™, for trace analysis, ≥99.9999% (metals basis)	100g
	Trace Analysis Salts	38979	Fluka	Sodium chloride, TraceSELECT™, for trace analysis, ≥99.999% (metals basis)	500g
	Trace Analysis Salts	35896H	Fluka	Sodium sulfate anhydrous	500g, 2.5Kg

Product and packaging availability may vary from country to country.





# OUR SERVICES

The growth of Honeywell's brands and recognized product portfolio is matched by significant expansion of our manufacturing sites, technical services, customer support, global distribution centers, and authorized distributor partners.

These new facilities, services and partnerships enable us to support customers in more ways than ever, offering a host of custom solutions, expert customer assistance, worldwide centers of excellence, advanced manufacturing capabilities, and a global supply chain and distribution partnership.

## CUSTOM SOLUTIONS

### Special Packaging and Returnable Containers

Honeywell Research Chemicals solvents and inorganics are available in traditional packaging as well as a variety of specialized or custom packs, suitable for lab scale through to production applications. Our returnable container program helps improve lab safety and increase storage space. The program can also be tailored to your current laboratory processes.



### Custom Blends

Need a bespoke solvent blend? We produce customized blends using our own proprietary, closed loop blending technology. These pre-prepared blends help you to:

- Save time
- Reduce waste
- Improve consistency
- Enhance safety

### Bulk Orders

We have the technology, capacity and processes to scale up and meet your needs for larger quantities of a specific product. We can help reduce your costs and waste—and improve your production processes—by supplying specific or high-volume quantities as required.

## CUSTOMER SERVICE

### Responsive & Helpful Support

Honeywell Research Chemicals takes great pride in its customer and product support. Our Global Customer Care teams are trained to be responsive and helpful. Multilingual advisors can help you place an order online, track the status of a delivery, or provide a quick and courteous response to your question.





# GLOBAL FOOTPRINT

## **Product Experts and Channel Partners Available to Meet Your Needs**

We are proud to partner with more than 200 authorized distributors in 100-plus countries to meet the needs of research chemists working across applications and industries.

In addition to an extensive distribution network, we have invested in seven warehousing and fulfillment centers across Europe, the Americas and Asia to enable uninterrupted access to our products and services worldwide.

Our partners, supported by our product experts, are equipped to help customers with a wide range of technical questions. Whether it's a packaging inquiry, technical specification request, quality-related question or advice on a custom formulation, we strive to respond in a timely manner.

We provide unparalleled global support on Karl Fischer titration through the Hydranal Center of Excellence and Application Labs in Germany and China. Hydranal™ reagents conform to the highest standards in quality control and have been a leader in Karl Fischer chemistry for decades. Our team of experts conducts regular seminars, webinars and workshops in partnership with leading equipment manufacturers across the globe.



# ABOUT OUR BRANDS

The genesis of Honeywell Research Chemicals began in 1814, when German chemist Johann Daniel Riedel successfully manufactured a series of pharmaceutical products, building a foundation for the chemicals industry.

The world has changed considerably since then, but our commitment to continued innovation in inorganics, solvents and other essential chemicals has not wavered.





As part of our efforts to provide an ever-growing and innovative portfolio, we are pleased to introduce a broad offering of premium solvents and analytical reagents commonly used in chemistry and analytical workflows.

#### Product lines

### Honeywell

Riedel-de Haën™

#### SOLVENTS

High-purity solvents for dedicated applications

**Chromasolv™** – Chromatography techniques including LC-MS, UHPLC, Headspace, and GC

**Spectroscopy Solvents** – IR and UV-Vis applications

**ACS and Pharmacopoeia Grade** – Industrial and pharmaceutical analytical applications

**TraceSELECT™ Solvents** – Trace and low-metal content analysis

### Honeywell

Burdick & Jackson™

#### SOLVENTS

High-purity solvents for multi-purpose and dedicated applications

**B&J BRAND™** – Multi-purpose solvents for demanding analytical applications

**B&J GC2™** – Capillary gas chromatography applications requiring trace analysis at or below the part-per-billion level

**BioSyn™** – DNA, RNA and peptide synthesis

**Anhydrous** – Moisture-sensitive organic synthesis, organometallic, combinatorial chemistry, and related applications

**B&J Purified Plus™** – Specialty organic synthesis, prep-LC, and other industrial and pharmaceutical applications requiring higher levels of lot-to-lot consistency

### Honeywell Fluka™

#### ANALYTICAL REAGENTS

Karl Fischer titration, standards, acids, bases, salts, and pH buffers

#### Analytical Inorganics

**Standard Solutions** – Buffers and concentrated solutions

**Hydranal™** – Karl Fischer titration for measuring water content

**TraceSELECT™ Inorganics** – Trace and low-metal content analysis

**Standards and Certified Reference Materials** – Chromatography and spectroscopy

### Honeywell

#### PERFORMANCE GRADE

Solvents and inorganics for general laboratory use

**Solvents** – ACS- specific use (HPLC), ACS general use, solvents for histology, and reagent- grade solvents for chemical synthesis and other industrial applications

**Inorganics** – Chemical synthesis and inorganic chemistry, including essential acids and bases, salts, metals and elements, and reagents for chemical reactions

# MANUFACTURING SITES

## Consistent Quality Production

Honeywell Research Chemicals produces the vast majority of its own products in advanced manufacturing facilities in Seelze, Germany, and Muskegon, Michigan, USA. Both sites are specially equipped to produce consistent, high-purity products that meet the standards you demand.



**SEELZE, GERMANY**

### Overview:

- Site covers more than 485,000 m<sup>2</sup>
- Operates according to the highest standards (TS 16949, ISO 9001, ISO 14001)
- OSHA 18001 and ISO 50001 accredited

### Capabilities & Personnel:

- Over 600 employees, with many in specialist R&D positions
- High-purity hydrogen fluoride production
- Organic and inorganic bulk production of fine chemicals for the pharmaceutical and agricultural industries
- Wastewater treatment
- Fully equipped, in-house analytical department

### Strengths:

- Distillation units from lab scale (2 L) up to 6000 L
- Fully automatic filling line under laminar flow box to ensure quality
- All high-purity grades filtered at the point of filling
- High-quality packaging technology
- Exceptional lot-to-lot consistency



**MUSKEGON, MICHIGAN, USA**

### Overview:

- Site covers more than 34,000 m<sup>2</sup>
- ISO 9001 certified

### Capabilities & Personnel:

- Fully equipped, in-house analytical department
- ABI and AKTA 100 oligo synthesizers
- Eight on-site chemists/technologists
- Five technical support chemists

### Strengths:

- Fast-cycle custom products
- Fleet assembly methodology
- Six Sigma and lean manufacturing
- Integrated operations, HSE, supply chain, technology, procurement, and commercial teams
- Excellent safety and environmental record
- Excellent lot-to-lot consistency

## To order, please contact:

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