



## Custom Synthesis

The AccuStandard Synthesis Department employs several PhD. Organic Chemists with many years of pertinent academic and industrial experience. The experienced staff has developed hundreds of pure chemical compounds for companies and governmental agencies around the world. The very well equipped synthetic laboratory with significant analytical support have made many notable synthesis projects possible. AccuStandard specializes in synthesizing chemicals of high purity to be used as reference standards, and also offers custom synthesis capability on milligram to kilogram scales.

### *Analytical Capabilities*

- GC-MS, GC-FID, GC-ECD, GC-NPD
- HPLC, LC-MS
- ICP, ICP-MS
- access to more analytical instrumentation if necessary

### *Synthesis and Purification*

- Milligram to Kilogram Glassware
- Inert Conditions Equipment
- High Performance Flash Chromatography
- Distillation Equipment – High Vacuum Distillation, Molecular Distillation (Kugelrohr), and Spinning Band Columns Preparative TLC
- Parr Pressure and Hydrogenation Reactor

AccuStandard is renowned for its quick response to the needs for new compounds. The company's especially strong Synthesis Department allows the synthesis of important and unique products. Featured, also in its history of firsts, are all of the 209 congeners of polychlorinated biphenyls (PCBs), 205 out of the 209 congeners of polybrominated diphenyl ethers (PBDEs) as well as many halogenated dioxins and dibenzofurans, PAHs, pesticides as well as fluorinated surrogates substituting the expensive isotopically labelled compounds.

Among the more recent introductions are the hydroxy and methoxy PBDE congeners as well as mixed bromo/chloro hydroxy and methoxy diphenyl ethers, organophosphate flame retardants, biofuels, plastic additives (AccuStandard authored a CRC Press Handbook), EPA Method 535 pesticide derivatives and previously unavailable explosive standards.

## OEM and Private Label Standards

We can reduce your costs using the Cozzoli Auto Filling/Sealing Machine to package just the right size product for your application. OEM Standards - Privately labeled standards manufactured and tested to your specifications. Cold and under-Nitrogen sealing available.

- Automated ampule filling & sealing 0.2 mL up to 20 mL and ampule sizes from 1 mL to 20 mL
- Quantities from 500 to over 500,000 ampules
- Homogeneity testing
- Amber ampules for added product stability
- Private labeling and packaging (OEM)

## Capabilities Overview

Founded in 1986, AccuStandard has grown from two to the current team of 65 people. The company started in a small business incubator co-sponsored by Yale University, The City of New Haven and the State of Connecticut at the former site of Olin Chemical Company in New Haven, Connecticut, USA. Outgrowing that facility, AccuStandard moved across town in 1998 into a fully modernized facility of 37,000 square feet of laboratories, office and storage space. AccuStandard is now one of the leading companies in the world specializing in Chemical Reference Standards.

AccuStandard ships products to over 108 countries and maintains a distributor network in 65 of those countries. Since its beginning, the product line has grown to include over 11,000 Reference Standard products and twice that number of special formulations which have been developed for specific customer needs. Standards include those for analysis of the most important EPA Methods, Pesticide Residue Screening, Flame Retardants, Biofuels, Plastic Additives, Dyes, Explosives, UOP and ASTM Methods and up-graded products for PIANO and Physical Property analyses.

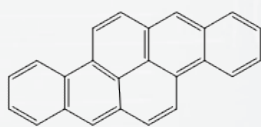
AccuStandard's quality system is accredited to ISO Guide 34 in addition to ISO 9001 and ISO/IEC 17025.

AccuStandard owes its success in large part to the excellence, loyalty and dedication of its staff, and we look forward to serving our customers for many years to come.

## AccuStandard's Custom Synthesized Products

- PCBs (all 209 congeners), & hydroxy, methoxy, and methylsulfonyl metabolites
- Halo-Dibenzodioxins and Furans
- PBDEs (205 out of 209 congeners) & hydroxy, methoxy, and chloro metabolites
- Fluorinated PBDEs
- Other Brominated Flame Retardants
- PBBs
- PAHs, Nitro-PAHs, Methyl-PAHs
- Pesticides and metabolites
- Explosives and metabolites
- Nonyl- and Octylphenol Ethoxylates
- Mono- and Diester Phthalates
- Organophosphates
- Other Rare Chemicals

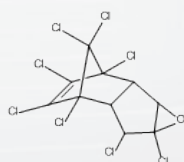
### Some Examples of Compounds



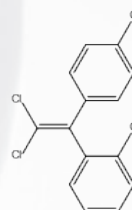
Dibenzo[ah]pyrene



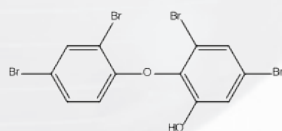
Benzo[ghi]perylene



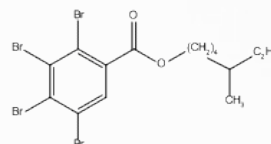
Oxychlorthane



o,p'-DDE



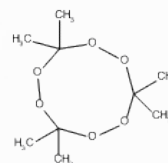
6-Hydroxy-2,2',4,4'-tetrabromodiphenylether



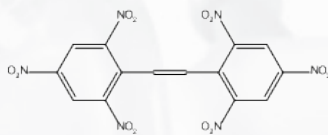
2-Ethylhexyltetrabromobenzoate



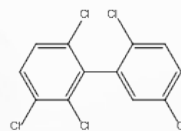
Bromochloroacetonitrile



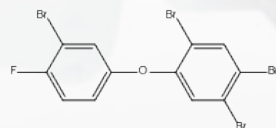
TATP



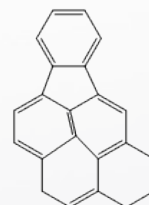
HNS



2,2',3,5',6-Pentachlorobiphenyl



4'-Fluoro-2,3',4,5-Tetrabromodiphenylether



Indeno[1,2,3-cd]pyrene



# AccuStandard<sup>®</sup>

**ISO** Guide 34 ▪ 17025 ▪ 9001

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