



## TWO COMPONENT VOLUMETRIC REAGENTS

With two component reagents, the reactants are in separate bottles. The titrant is a solution of iodine and alcohol. The solvent solution contains the sulphur dioxide and imidazole in a specific alcohol. The reagents remain stable and unchanged for a minimum of two years as long as the bottles remain unopened.

|   |         |        |
|---|---------|--------|
| <b>TITRANTS</b>   | 500 ml  | 44.06  |
| <b>HYDRANAL® Titrant 2</b>                                | 6x500ml | 230.57 |
| <b>#34811 DEA</b>   | 1 L     | 77.46  |
| One ml is equivalent to<br>2ml ± 0.01 mg H <sub>2</sub> O | 4x2.5 L | 403.89 |

|  |          |        |
|--|----------|--------|
| <b>HYDRANAL® Titrant 5</b>                                 | 500 ml   | 44.06  |
| <b>#34801 DEA</b>  | 6x500 ml | 230.57 |
| One ml is equivalent to<br>5.00 ± 0.02 mg H <sub>2</sub> O | 1 L      | 83.31  |
|  | 6x1 L    | 435.93 |
|  | 2.5 L    | 168.21 |
|  | 4x2.5 L  | 584.67 |

|  |       |        |
|--|-------|--------|
| <b>#34801-SC</b>   |       |        |
| <b>Honeywell's Smart Chemical Hydranal™</b><br>bottles are embedded with an RFID chip. | 1 L   | 87.35  |
|  | 6x1 L | 457.07 |

### SOLVENTS

|   |         |        |
|---|---------|--------|
| <b>HYDRANAL® SOLVENT S</b>  | 1 L     | 76.77  |
| <b>#34800</b>   | 6x1 L   | 399.31 |
| A methanol based standard solvent for<br>volumetric KF applications | 2.5 L   | 159.06 |
|   | 4x2.5 L | 552.06 |

### **HYDRANAL® Solvent CM**

|  |         |        |
|--|---------|--------|
| <b>#34812</b>  |         |        |
| Solvent component containing<br>methanol and chloroform for the<br>determination of non-polar samples like<br>oils & fats. | 1 L     | 97.05  |
|  | 6x1 L   | 506.30 |
|  | 2.5 L   | 154.70 |
|  | 4x2.5 L | 668.20 |

### **HYDRANAL® Solvent Oil**

|  |       |        |
|--|-------|--------|
| <b>#34749</b>  |       |        |
| For water determination in non-polar<br>substances likes fats and oils. Contains<br>methanol and hexane. | 1 L   | 97.15  |
|  | 6x1 L | 506.30 |

### Specialty Reagents for Aldehydes and Ketones

|   |         |        |
|---|---------|--------|
| <b>HYDRANAL® Solvent E</b>  | 1 L     | 75.98  |
| <b>#34730</b>   | 6x 1 L  | 396.46 |
| An ethanol based working medium<br>containing imidazole, sulphur dioxide and<br>diethanolamine. Can be used in the analysis<br>of aldehydes and ketones when used with other methanol<br>free reagents. | 2.5 L   | 157.33 |
|   | 4x2.5 L | 546.34 |

### **HYDRANAL® Titrant 2E**

|   |     |       |
|---|-----|-------|
| <b>#34723 DEA</b>   | 1 L | 77.46 |
| A two component reagent based on<br>ethanol. Can be used with any combination<br>of traditional solvents. When used<br>with Hydranal® Solvent E, it provides a methanol-<br>free system for the analysis with a titre of 2. |     |       |

### **HYDRANAL® Titrant 5E**

|   |        |        |
|---|--------|--------|
| <b>#34732 DEA</b>   |        |        |
| A two-component reagent based on ethanol  | 100 ml | 33.65  |
| Can be used with any combination of<br>traditional reagents. When used with the<br>Hydranal Solvent E, it provides a methanol.<br>free system for the analysis with a titre of 5. | 1 L    | 78.15  |
|   | 2.5 L  | 169.91 |

## HYDRANAL® REAGENTS COULOMETRIC REAGENTS

Coulometry usually requires the use of an anolyte and a catholyte. Hydranal® anolytes contain iodide and a sulphur dioxide/imidazole buffer in a suitable solvent. Coulometric reagents have a shelf life of 5 years, as long as bottle remains unopened.

### ANOLYTES

#### **HYDRANAL® Coulomat A**

|   |          |        |
|---|----------|--------|
| <b>#34807</b>   | 500 ml   | 101.57 |
| Anolyte standard two component<br>coulometry. Contains methanol and<br>chloroform as the solvents. Water capacity is ><br>10 mg/ml. | 6x500 ml | 415.98 |

#### **HYDRANAL® Coulomat AG**

|   |          |        |
|---|----------|--------|
| <b>#34836</b>   | 500 ml   | 101.02 |
| For coulometry in cells with or without a<br>diaphragm. Free of carbon tetrachloride<br>and chloroform. | 6x500 ml | 526.25 |
|   | 1 L      | 176.71 |
|   | 6x1 L    | 921.95 |

#### **HYDRANAL® Coulomat AG-H**

|   |          |        |
|---|----------|--------|
| <b>#34843</b>   | 500 ml   | 113.74 |
| Coulometric analysis for cells with or<br>without a diaphragm. Effective for very<br>polar samples (long-chained hydrocarbons).<br>Free of carbon tetrachloride and chloroform. | 6x500 ml | 615.02 |

#### **HYDRANAL® Coulomat AD**

|   |          |        |
|---|----------|--------|
| <b>#34810</b>   | 500 ml   | 131.72 |
| For coulometry in cells without a<br>diaphragm. Free of carbon tetrachloride and<br>chloroform. | 6x500 ml | 686.02 |

### CATHOLYTES

#### **HYDRANAL® Coulomat CG**

|   |         |        |
|---|---------|--------|
| <b>#34840</b>   | 50 ml   | 81.33  |
| Standard catholyte for coulometric cells<br>with diaphragm. It contains protected<br>ammonium salts as the reactive component and methanol. | 6x50 ml | 425.47 |

#### **HYDRANAL® Coulomat Oil**

|  |          |        |
|--|----------|--------|
| <b>#34868</b>  | 100 ml   | 32.19  |
| Anolyte for determination of oils.<br>Based on methanol, with addition of<br>aromatic and halogenated hydrocarbons<br>to aid solubility. | 6x100 ml | 168.37 |
|  | 500 ml   | 109.04 |
|  | 6x500 ml | 570.35 |

#### **HYDRANAL® Coulomat AK**

|   |          |         |
|---|----------|---------|
| <b>#34820</b>   | 500 ml   | 235.36  |
| Anolyte for coulometric water determination<br>in samples containing ketones. | 6x500 ml | 1219.73 |

#### **HYDRANAL® Coulomat CG-K**

|   |         |         |
|---|---------|---------|
| <b>#34821</b>   | 50 ml   | 207.87  |
| Catholyte for coulometric water<br>determination in samples of aldehydes & ketones.<br>Packaged as 10x5ml ampoules. | 6x50 ml | 1079.79 |

### SPECIALTY REAGENTS

#### **HYDRANAL® Coulomat E**

|   |          |        |
|---|----------|--------|
| <b>#34726</b>   | 500 ml   | 118.54 |
| Replaces much of the methanol with ethanol<br>reducing the toxicity without affecting performance.<br>Can be used in systems with or without a diaphragm. | 6x500 ml | 617.31 |

#### **HYDRANAL® Coulomat AF7**

|  |       |         |
|--|-------|---------|
| <b>#34829</b>  | 1 L   | 214.74  |
| Anolyte for two-component coulometry,<br>specifically for the AF7 coulometer. It is<br>used with Composite 5 as the catholyte. | 6x1 L | 1122.37 |

## SPECIALTY REAGENTS

**HYDRANAL® STANDARDS**

Standards are necessary to standardize and control reagents, to check reliability of the titrator and to test instruments according to the requirements of ISO9000, GMP, GLP and FDA guidelines. (A Manufacturer's Test certificate with exact specifications is included with each standard.)

**CERTIFIED STANDARDS****HYDRANAL® Water standard 0.10**

|  |         |        |
|--|---------|--------|
| #34847   | 40 ml   | 98.89  |
| A certified standard containing 0.01 mg of H <sub>2</sub> O per g (0.10 mg/g=0.01%). | 6x40 ml | 516.32 |
| 40 ml is packaged as 10x4 ml ampoules.   |         |        |

**HYDRANAL® Water Standard 1.0**

|  |         |        |
|--|---------|--------|
| #34828   | 40 ml   | 98.89  |
| A certified standard containing 1.00 mg of H <sub>2</sub> O per g (1 mg/g = 0.1%). | 6x40 ml | 516.32 |
| 40 ml is packaged as 10x4ml ampoules.  |         |        |

**HYDRANAL® Water Standard 10.0**

|  |         |        |
|--|---------|--------|
| #34849   | 80 ml   | 98.89  |
| A certified standard containing 10.0 mg of H <sub>2</sub> O per g (10 mg/g= 1%). | 6x80 ml | 516.32 |
| 80 ml is packaged as 10 x 8 ml ampoules.   |         |        |

**NEW****ISO GUIDE 34 WATER STANDARDS****HYDRANAL® CRM WATER STANDARD 10.0**

|                |                                   |                |        |
|----------------|-----------------------------------|----------------|--------|
| #34425         | Water content 10.0 mg/g=1.0%      | 80 ml (10x8ml) | 117.06 |
| #34426         | Water content 1.0 mg/g = 0.1%     | 40 ml (10x4ml) | 117.06 |
| #34424         | Solid CRM Standard, water content | 10 gm          | 93.63  |
| Approx. 15.66% |                                   |                |        |

**BUFFERS**

|   |          |        |
|---|----------|--------|
| #34804                                  | 500 ml   | 55.00  |
| For KF titrations of samples containing | 6x500 ml | 288.63 |
| <b>HYDRANAL®</b> Molecular Sieve 0.3nm  |          |        |
| #34241                                  | 250gm    | 57.27  |

**HYDRANAL® Buffer Base**

|   |       |        |
|---|-------|--------|
| #37859  | 1 L   | 94.07  |
| For KF titrations of samples containing           | 6x1 L | 490.94 |
| Salicylic acid. Buffer capacity 1 mmoles base/ml. |       |        |

**HYDRANAL® Humidity Absorber**

|        |        |       |
|--------|--------|-------|
| #34788 | 500 gm | 48.59 |
|        | 1 kg   | 80.59 |

**HYDRANAL® Formamide Dry**

|        |        |        |
|--------|--------|--------|
| #34724 | 1 L    | 75.10  |
|        | 6x 1 L | 322.92 |

**ADDITIONAL STANDARDS****HYDRANAL® Water Standard KF oven 220-230° C**

|  |         |        |
|--|---------|--------|
| #34748   | 10 gm   | 64.64  |
| Solid standard specially designed to check /control/validate KF ovens @ 229-230 ° C Consists of finely milled potassium citrate-1-hydrate with a theoretical water content of 5.55% by weight. | 6x10 gm | 343.03 |

**HYDRANAL® Coulomat AG Oven**

|  |         |        |
|--|---------|--------|
| #34739   | 500 ml  | 118.54 |
| Anolyte for coulometric water determinations using a KF oven. Ensures low error even for long duration determinations. Free of halogenated hydrocarbons. | 6x500ml | 619.60 |

**HYDRANAL® Standard 5.0 Non-Hygroscopic**

|  |          |        |
|--|----------|--------|
| #34813   | 100 ml   | 24.14  |
| A non-hygroscopic butanol/xylene mixture for volumetric standardization. | 6x100 ml | 125.17 |
|  | 500 ml   | 62.31  |
| Water content is 5.00 ± 0.02 mg/ml                                       | 6x500 ml | 286.34 |

**HYDRANAL® Water in Methanol Standard 5.00**

|   |        |       |
|---|--------|-------|
| #34802  | 1 L    | 52.37 |
| A standard designed specifically for use in doing back titrations. Water content is 5.00 ± 0.02 mg/ml | 500 ml | 38.31 |

**HYDRANAL® Standard Sodium Tartrate-2-hydrate**

|  |          |        |
|--|----------|--------|
| #34803                                       | 100 gm   | 52.81  |
| A primary standard for volumetric titration. | 6x100 gm | 276.63 |
| Water content = 15.66 +/- 0.05%              |          |        |

**HYDRANAL® Water Standard Oil**

|  |       |        |
|--|-------|--------|
| #34694   | 80 ml | 151.96 |
| A standard specifically designed for water determination in oils by coulometric titration. Water content in low ppm range. |       |        |

**HYDRANAL® Water Standard KF Oven 140-160° C**

|  |       |       |
|--|-------|-------|
| #34693   | 10 gm | 70.60 |
| Solid standard specifically designed to check/control/validate KF ovens @ 140-160 deg. C. Water content approx. 5% (exact value stated on C of A). |       |       |

**HYDRANAL® Sodium Tartrate Dihydrate**

|        |         |        |
|--------|---------|--------|
| #34696 | 25 gm   | 30.49  |
|        | 6x25 gm | 182.90 |

**HYDRANAL® Chloroform**

|        |        |        |
|--------|--------|--------|
| #37863 | 1 L    | 59.10  |
|        | 6x 1 L | 307.49 |

**HYDRANAL® Xylene**

|        |       |        |
|--------|-------|--------|
| #37866 | 1 L   | 71.91  |
|        | 6x1 L | 375.49 |

**HYDRANAL® Salicylic acid**

|        |        |       |
|--------|--------|-------|
| #37865 | 500 gm | 41.00 |
|--------|--------|-------|

**HYDRANAL® Imidazole**

|        |        |        |
|--------|--------|--------|
| #37864 | 500 gm | 101.40 |
|--------|--------|--------|

**HYDRANAL® Benzoic acid**

|        |          |        |
|--------|----------|--------|
| #32035 | 500 gm   | 49.38  |
|        | 6x500 gm | 246.21 |

**HYDRANAL® Water Standard 0.1**

|                                  |         |       |
|----------------------------------|---------|-------|
| #34446                           | 10x4 ml | 98.89 |
| (water content 0.1 mg/g = 0.01%) |         |       |