



## STATE OF WISCONSIN

Department of Safety and  
Professional Services

Approval # 20120003  
(Revised 20100004)

Environmental & Regulatory Services Division  
Bureau of Petroleum Products and Tanks  
201 West Washington Avenue  
P.O. Box 7837  
Madison, WI 53707-7837

# Wisconsin SPS 310 Material Approval

Equipment: Models S406 Optical Sensor and S404 Float  
Switch with 404-4 Controller

Manufacturer: Franklin Fueling Systems  
3760 Marsh Rd.  
Madison, WI 53718

Expiration of Approval: December 31, 2013

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### SCOPE OF EVALUATION

The Models S406 Optical Sensor and S404 Float Switch for use with the 404-4 Controller as manufactured by Franklin Fueling Systems, for leak detection of sumps and double-wall pipe systems, has been evaluated for use as a method of sump monitoring complying with **ss. SPS 310.500(5)** and interstitial monitoring complying with **ss. SPS 310.515(7)** of the current edition of the Wisconsin Flammable and Combustible Liquids Code.

This evaluation summary is condensed to provide the specific installation, application and operation parameters necessary to maintain the subject systems in compliance with the Wisconsin Administrative Code – Comm 10.

## **DESCRIPTION AND USE**

The Models S406 Optical Sensor and S404 Float Switch for use with the 404-4 Controller are part of Franklin Fueling's DC400 Dispensing Cutoff System. This is a stand-alone, two-part solid state system which includes a controller and sensor, designed to automatically shut down product flow or signal an alarm if liquid is detected inside containment spaces.

The DC400 can be mounted inside any turbine sump, providing complete pump shut down; or mounted directly into dispenser sumps, allowing only the effected dispenser to be shut down as liquid is detected. Two liquid sensor options, optical and float, allow automatic reset of the system once liquid has been removed from the effected sump.

The S404 is a float switch sensor designed to alarm and cut-off power when the internal float rises in the liquid.

The S406 is an optical sensor designed to shut-off a turbine or dispenser when the sensor comes into contact with a liquid. The S406 sensor can be reset by removing the liquid from the containment sump which will restore power to the effected turbine or dispenser.

The 404-4 Controller can be mounted inside any containment sump and connect it to the existing turbine or dispenser wiring. To provide leak detection liquid sensing, either the S404 or S406 liquid sensor can be connected to the end of the controller and placed in the bottom of the containment sump.

The S404 and S406 sensors may be used on systems that contain gasoline, diesel, biodiesel up to B20, B100, alcohol mixtures up to 100% and with manufacturer's approval, other liquids with a known density.

## **TESTS AND RESULTS**

All sensors are intrinsically safe and are listed for Class I, Division 1 hazardous (classified) locations. The 404-4 controller is of an explosion proof design and Listed for Class I, Division 1 hazardous (classified) locations.

Third-party testing of the liquid sensors was conducted in accordance with the Alternative EPA Test procedures for Liquid Level Sensors protocol.

## **LIMITATIONS / CONDITIONS OF APPROVAL**

- All monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer instructions, and verified every 12 months in accordance with **ss. SPS 310.510(2)** for operability, proper operating condition, and proper calibration if required. Records of sampling, testing, or monitoring shall be maintained in accordance with **SPS130.500(9)**.

- The manufacturer shall submit for a revision to this Wisconsin Material Approval application if any of the functional performance capabilities of this equipment are revised. This would include, but not be limited to changes in software, hardware, or methodology.
- The liquid sensors shall be placed in the lowest point in the sump such that a release from the submersible pump, dispenser, or sump piping will be detected.
- For monitoring of double-wall piping, the liquid sensors shall be placed such that a release from any portion of the piping will be detected.

This approval will be valid through December 31, 2013, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The Wisconsin Material Approval Number must be provided when plans that include this product are submitted for review.

**DISCLAIMER**

The Department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement unless specified in this document.

Effective Date: 01/01/2012

Reviewed by: Signature on file  
Greg Bareta, P. E.  
Engineering Consultant  
Bureau of Petroleum Products and Tanks

Approved by: Signature on file Date: \_\_\_\_\_