SEVERN MARINE TECHNOLOGIES, LLC

Long Term Duration of ClearSignal Biofouling Control Coatings

Biofouling control coatings fall into two major categories. Those that (1) use active biocides to either kill or deter biofouling settlement and (2) foul release systems that utilize a non-stick surface to control biofouling. ClearSignal is a silicone hybrid foul release system.

Biocide based systems can be highly effective for controlling biofouling for six months to one-year timeframes, before the biocide is completely depleted from the coating matrix and becomes ineffective. Biofouling control for greater timeframes is achieved through the use of foul release coatings because the foul release properties are a stable integral component of the coating system and does not change with time.

Foul release coatings operating in static conditions do in many cases require periodic cleaning. The energy and effort required to clean a high performance foul release coating is minimal as fouling adhesion has been reduced by up to 97%. The degree of biofouling accumulation incurred varies with geography, seasonal variations in water conditions and associated biology, water depth and it's associated light exposure. For example, depths greater than 100 meters are typically not in a high photic zone and therefore have highly reduced biofouling conditions.

An important caveat to foul release coatings is that they must be highly durable and achieve high adhesion to the base substrate being coated in order to deliver years and even decades of biofouling protection. The durability and adhesion of the coating play an important role in the general survivability of the coating in the rigorous operating conditions of the marine environment. High durability and substrate adhesion also enable the coating to be cleaned in a number different manners that range from water jets, mechanical cleaning and exposure to natural high energy conditions such as surface waves.

ClearSignal Design Criteria for Long Term Applications

Severn Marine Technologies developed the ClearSignal biofouling control system in response to the need for a foul release coating system that had the lifespan of the undersea instrument platform or subsea device to which it is applied. ClearSignal is formulated for the specific substrate it is being applied to in order to realize high levels of adhesion on a large number of material types. Additionally, ClearSignal has a significantly greater hardness than other foul release coatings. It is also worth noting that almost without exception the other manufactures of foul release coatings designed for ship hull requirements and use extremely low durometer soft rubbers in order to achieve high levels of biofouling resistance. These softer compounds are highly prone to damage and perform poorly in non-ship applications. The high durometer ClearSignal formulation achieves equal or better biofouling resistance than these softer compounds (as tested by the Florida Institute of Technology) and is a highly robust system. The levels of adhesion to the substrate and toughness of ClearSignal are performance attributes that are completely unique to this product and provide the years and decades of biofouling protection required for many subsea applications.

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