



Sulfate Reducing Bacteria (SRB)

SRB are anaerobes that are sustained by organic nutrients. **Generally they require a complete absence of oxygen and a highly reduced environment to function efficiently.** Nonetheless, they circulate (probably in a resting state) in aerated waters, including those treated with chlorine and other oxidizers, until they find an "ideal" environment supporting their metabolism and multiplication.

SRB are usually lumped into two nutrient categories, those that can use lactate and those that cannot. The latter generally use acetate and are difficult to grow in the laboratory on any medium. Lactate, acetate, and other short chain fatty acids usable by SRB do not occur naturally in the environment. Therefore, these organisms depend on other organisms to produce such compounds.

SRB reduce sulfate to sulfide, which usually shows up as hydrogen sulfide or, if iron is available, as black ferrous sulfide. In the absence of sulfate, some strains can function as fermenters and use organic compounds such as pyruvate to produce acetate, hydrogen, and carbon dioxide. Many SRB strains also contain hydrogenase enzymes, which allow them to consume hydrogen. Most common strains of SRB grow best at temperatures from 25° to 35°C.

Tests for the presence of SRB have traditionally involved growing the organisms on laboratory media, quite unlike the natural environment in which they were found. These laboratory media will only grow certain strains of SRB, and even then some samples require a long lag time before the organisms will adapt to the new growth conditions. As a result, misleading information has been obtained regarding the presence or absence of SRB in field samples. **SRB have been implicated in the corrosion of cast iron and steel, ferritic stainless steels, 300 series stainless steels (also very highly alloyed stainless steels), copper nickel alloys, and high nickel molybdenum alloys.** They are almost always present at corrosion sites because they are in soils, surface water streams and waterside deposits in general. Their mere presence, however, does not mean they are causing corrosion.

The efficacy test for control of **SRB** with the usage of various biocides is carried out at **ALTRET** Laboratory.



Sample of circulating water was collected from M/s Vinyl Chemicals, observed that water may contains high microbiological growth including SRB as system fund dirty odor particularly sulphide. Microbiological control test was performed in static condition in laboratory.

Efficacy Test Result of ALTRET SRB Controller:-

Sr. No.	MPN Technique for SRB [Blank]	ALTRET 2482		ALTRET 2492	
		Dosage 70 ppm	Dosage 120 ppm	Dosage 70 ppm	Dosage 120 ppm
1.	23 * 10 ⁵ / 100 ml	16* 10 ³ / 100 ml	Not Detected	34* 10 ³ / 100 ml	10/ 100 ml
2.	68 * 10 ⁵ / 100ml	46* 10 ³ / 100 ml	10/100 ml	58* 10 ³ / 100 ml	10/100 ml