NACE approved materials for fluid level guns

About the importance of the usage of corrosion resistant material in H_2S-containing environments in oil and gas production.

Hydrogen sulfide (H_2S) is a common hazard that's not easily recognized, but can easily kill. Occurring naturally at oil and gas sites, hydrogen sulfide H_2S is an extremely hazardous gas. High concentrations can cause shock, convulsions, inability to breathe, rapid unconsciousness, coma, and death. Effects can occur within as little as a single breath, according to the Occupational Safety and Health Administration (OSHA).

Exposure to hydrogen sulfide is present for all oil and gas personnel including service companies and contractors. Concentrations are often found to be above the permissible limits set by OSHA, so standard operating procedures for processes or procedures which use corrosive, toxic or highly toxic gases, such as H_2S, shall be developed that include emergency response actions. All involved employees should be trained and be familiar with these procedures.

Besides the toxic effect H_2S also has an influence on the integrity of equipment and instrumentation used in the oilfield. Metals become brittle when used in H_2S gas service. The consequences of sudden failures of metallic oil and gas field components, associated with their expose to H_2S-containing production fluids, led to the first edition of the ANSI/NACE MR0175 standard, which was published in 1975 by the National Association of Corrosion Engineers, known as the NACE international. The standard provides guidance for the selection and specification of sulfide stress cracking resistant materials when H_2S thresholds were exceeded.

The sonoecho™ Gas Gun may be exposed to H_2S. It's main components are therefore made from duplex steel or titanium, which according to the third edition of NACE approved in November 2015, may be used without restrictions on temperature and H_2S concentration.

Table A.24 — Environmental and materials limits for duplex stainless steels used for any equipment or component

[illegible]	[illegible]	Partial pressure H_2S p_{H_2S}	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	max	[illegible]			
	°C (°F)	kPa (psi)	mg/l			
$30 \le F_{PREN} \le 40.0$ Mo ≥ 1.5 %	See "Remarks" column	See "Remarks" column		See "Remarks" column	NOT	These materials have been used without restrictions on temperature, pH_2S or *in situ* pH in production environments. [illegible]
$40.0 < F_{PREN} \le 45$	See "Remarks" column	See "Remarks" column	Nil	See "Remarks" column	NOT	

ANSI/NACE MR0175/ISO 15156-3:2015(E)

sonoecho™

NACE approved fluid level gas guns

sonoecho™
Liquid Level Gun 3000 PSI

sonoecho™
Liquid Level Gun 5000 PSI

sonoecho™
Liquid Level Gun 10000 PSI