

## Silicon on Sapphire Technology

Silicon-on-Sapphire (SOS) technology was initially utilized in the advancement of high temperature integrated circuits for the NASA space program. ESI has taken this technology and developed a sensor that is capable of accurately measuring vibration, torque, force or pressure in extreme temperatures over long periods of time. The big advantage of an SOS sensor over conventional silicon based sensors is that the SOS sensor is free from residual stresses caused during processing, which can lead to reduced performance. The excellent elasticity of the sapphire is also a very important factor. The ability to bend the wafer and bring it back down to its original position- known as repeatability- is a highly desirable characteristic for sensors.

## Silicon on Sapphire Pressure Sensing Technology

Explosive atmospheres can be caused by flammable gases, mists, vapors or combustible dusts. If there is enough of the substance mixed with the air, one source of ignition can cause an explosion, leading to major damage, serious injury and, even, loss of life. Using the correct intrinsically safe equipment is a significant factor in the prevention of such explosions.

## Regulations to Assess Performance in Hazardous Zones

ATEX is the name commonly given to the framework for controlling explosive atmospheres. The regulations apply to all equipment intended for use in hazardous zones whether mechanical or electrical. Intrinsic safety equipment must be tested and approved by an independent body to assure its safety. This practice involves a detailed process of examination, testing and assessment of the equipment. Only if the equipment withstands this rigorous testing process will an ATEX certificate and report confirming that the product is safe to use within potentially explosive environments be issued.

Incorporating SOS into applications where ATEX approval is required offers a reliable and durable solution with unbeatable performance and value. The range includes absolute, differential, submersible, high pressure, high accuracy, hygienic and rugged oil & gas transmitters.

Ellison Sensors, Inc. now has an extensive range of intrinsically safe Silicon-on-Sapphire pressure transmitters, all [ATEX](#) approved to EEXIA IIC T4 standards by SIRA- a world leader in the conformity assessments field. ESI has now integrated its proven Silicon-on-Sapphire pressure sensing technology into a range of [intrinsically safe](#) transmitters.

## ATEX Approval for M1 Mining Applications for Intrinsically Safe Products

Our range of intrinsically safe products are ATEX certified for MINING applications. Designed and certified in accordance with the ATEX directive 94/9/EC, our intrinsically safe product range is intended for installation and operation in potentially explosive atmospheres in zone 0 gas group IIC, temperature class T4 and zone 20 dust and M1 mining.