

Directive No: 2-2024

Revision: 0

Directive for Importation of New or Second-hand Combustion and Fuel Handling Systems for Industrial Thermo Processing Equipment (TPE) applications

1. Purpose of the Directive

To ensure that Importers and Purchasers of combustion systems are appraised of the South African Regulations and Standards applicable to such imported equipment.

Combustion Systems are defined as:

- Systems designed to produce and regulate heat by combusting fuel, typically gaseous or liquid, in an efficient and controlled manner. These systems can be divided into two general categories: direct-fired and indirect-fired systems.
- Examples of TPE where combustion systems are used:
 - boilers, furnaces, heaters, kilns, ovens, and dryers - of a wide range of industries, including chemical processing, food and beverage processing, glass production, steel making and more.

Importers and Purchasers have the obligation to ensure that the Original Equipment Manufacturers (OEM) design, manufacture and deliver systems that are compliant to South African Regulations and Safety Standards.

Regulations and Standards ensure that systems meet the minimum safety requirements for operation.

Combustion systems entering the South African market are to be assessed for compliance prior to such system being placed into operation. Only the Southern African Gas Association (SAGA) appointed TPE licenced Gas Practitioners can audit the system and issue a Certificate of Conformity (CoC).

The Directive details the required process to be followed.

2. South African Legislation, Regulations, Standards, Mandate and Rules Governing TPE

- a. Occupational Health and Safety Act.
- b. Pressure Equipment Regulations (PER).
- c. SANS 347 Categorisation and conformity assessment of pressure equipment.
- d. SANS 13577 Industrial furnaces and associated processing equipment – Safety, Parts 1, 2 & 4.
- e. Reference to SANS 13577 implies the use of SANS 329 upon replacement by SANS 13577 as from 1 January 2025.
- f. Department of Employment and Labour (DoEL) mandate to SAGA to administer an equipment verification scheme referred to as the Safe Gas Equipment Scheme (SGES).
- g. Rules Governing the Scheme.

Specific reference is made to the Pressure Equipment Regulations namely:

Reg 5: Duties of Importers and Suppliers, quote unquote...

- “ (1) *Importers and suppliers shall ensure that pressure equipment sold complies with the requirements of this Regulation.*
- (2) *The importer shall assume the liability of the manufacturer in terms of this Regulation.*
- (3) *Any pressure equipment that requires a permit to be issued by an organisation approved by the chief inspector shall ensure that such approval is obtained by the importer or manufacturer before the pressure equipment is placed in the market: Provided that such equipment shall comply with the relevant health and safety standard incorporated into these Regulation under section 44 of the Act.”*

Reg 5 (3) implies that the equipment imported to be sold or placed in the market needs verification by a DoEL equipment mandated association namely SAGA and a permit issued on confirmation of verification to the South African Regulations and relevant Safety Standards.

A combustion system new or second hand when manufactured, constructed, categorised and conformity assessed outside of South Africa will meet the requirements of the Manufacturer in the specific country of manufacture/origin. As such when the combustion system is imported, the system needs to be assessed for compliance to South African Regulations and Safety Standards and may not meet certain essential/additional requirements of the PER, SANS 347 and SANS 13577-2 and therefore needs to be aligned with the requirements of the SA Regulations.

A combustion system manufactured, constructed, categorised, and conformity assessed as an assembly in a country outside of South Africa could be certified according to a Safety Standard e.g., EN 746-2 (being replaced with EN ISO 13577-2,-4) In South Africa a similar standard exists being SANS 13577 being a modified adoption of ISO 13577-2 customised for SA conditions and to which the imported combustion system needs to comply. Using SANS 13577, implies that international and national requirements are aligned and dovetailed to ensure compliance and understanding between the Original Equipment Manufacturer (OEM) and South African Importer.

For further clarification of the South African requirements, the SANS 13577-2 has a modified Annex AA. Importers who require the services of an OEM to construct a combustion system need to provide the OEM with the SANS 13577 in so doing providing the required certifications in line with the PER, SANS 347 and SANS 13577.

Combustion pressure equipment for example piping, regulators, valves, filters, burners, meters, burner management systems and other required pressure or safety accessories, manufactured, categorised and conformity assessed as individual pressure equipment in a country outside of South Africa shall be in accordance with the required normative referenced standards of a combustion system. If not, alternatively a technical standard of acceptable equivalency or better than the normative reference within SANS 13577 to be recognised by the South African Regulations and Rules Governing the SGES, if acceptable and suited, duly adopted. Once adopted the South African Bureau of Standards process of following the South African National Standards (SANS) process should be considered.

Further clarity as to equipment and assemblies, with referencing to SANS 347, quote unquote:

“ 5.1.7 Pressure equipment in assemblies shall be conformity assessed as follows:

- a) *the assessment of each item of pressure equipment making up the assembly shall be in accordance with the hazard Category and the applicable Conformity Assessment Module;*
- b) *the assessment of the integration of the various components of the assembly are suitable for the intended duty such as material compatibility, vibration, loads and stresses;”*

For the above reasons, applicable items of equipment within the combustion system requires verification to the PER, SANS 347 and required Safety Standard for reasons of replacement. Applicable items require an equipment permit issued by SAGA under the Safe Gas Equipment Scheme (SGES) for the system to be compliant and legally operable before commissioning the combustion system.

3. Process for New Combustion Systems:

- The Importer / purchaser of combustion systems are to specify to the OEM the local Regulations and Standards to be complied with when placing orders for systems.
- If the OEM is unwilling or unable to modify their respective systems to suit the South African Regulations and Standards, such OEM should provide a detail report on the deviations, but the Importer remains liable to ensure compliance to South African Regulations and Standards.

4. Combustion system compliance

a. OEM compliant system

- i. The Importer to register all equipment with SGES.
- ii. Once equipment registered and the safe operating of the system verified (e.g., start up sequence, purge time, interlocks, trip conditions and combustion ratio) the system can be signed off and CoC issued by a licenced Gas Practitioner.

b. OEM non compliant system

- i. The Importer to obtain list of deviations to the South African Regulations and Safety Standards from the OEM or seller of the system.
- ii. The Importer to appoint an accredited gas practitioner to conduct a full system audit taking cognisance of the OEM / Seller deviation report.
- iii. The Gas Practitioner to report all deviations to the Importer and propose remedial actions to be implemented.
- iv. Actions:
 1. Register all equipment with the SGES.
 2. Replace equipment that cannot be registered with the SGES.
 3. Piping material used for construction to be verified compliant to relevant Standard by means of the Certificate of Manufacture (COM). If no fabrication data pack is available, the following is to be performed:
 - a. Ultrasonic testing pipe work to verify wall thickness as per schedule 40 piping specification.
 - b. Ultrasonic testing 10% of welds to check quality of welding. If 10% indicates weld failures, then ultrasonic testing 100% of welds.
 - c. Pressure test piping system to maximum pressure rating of equipment.
- v. Design assessment of the system to be performed. Such assessment will be directed by the requirements of SANS 347 e.g., Design calculations.
- vi. Test operational safety of the system (e.g., Start sequence, safety interlocks, shutdown conditions, purge time, flame stability, fuel ratio's).
- vii. On completion of the above and operator training a CoC for the system can be issued by a licenced Gas Practitioner.

5. Process for second-hand combustion systems (Imported or locally obtained)

The criteria for second-hand combustions systems are as for those regulating new combustion systems.

Where equipment permits are no longer available for specific equipment such equipment can either be re-verified by SAGA or be replaced with verified equipment.

The mechanical integrity of the piping construction is to be verified against the fabrication data pack or if such data pack is no longer available the materials of construction and welding will need to be verified together with a pressure test.

The operational safety of the system is to be verified by a licensed TPE Gas Practitioner.

Upon the successful completion of the above a Certificate of Conformity (CoC) can be issued by the TPE licenced Gas Practitioner for the gas system.

For further information, related equipment and standards refer to www.safegasequipment.co.za

Implimentation of the directive with immediate effect.

Yours in Safety



Chairman

17 July 2024