



Environmental & Cable Test Equipment

IEC 60335-1 / IEC 60811-412 Oxygen Bomb Aging Test Chamber

KP6551 Product Catalogue

Dual-mode laboratory equipment for accelerated ageing of cable insulation, cable sheathing, rubber and polymer specimens under controlled pressurized oxygen or compressed air.

IEC 60335-1

IEC 60811-412

O2 / AIR MODE



STANDARDS

IEC 60811-412 / IEC 60335-1 / IS series

TEST MEDIA

Pressurized oxygen and compressed air

MAX PRESSURE

2.5 MPa equipment capability

TEMPERATURE

Ambient to 200 C

Product Overview and Laboratory Use

The KP6551 is a dual-mode pressure-ageing chamber for material specimens. It creates a controlled heated environment using oxygen or compressed air, helping laboratories perform accelerated ageing before mechanical or visual evaluation.

Dual-medium ageing

One platform supports oxygen bomb and compressed-air bomb ageing. The selected medium, pressure and test program must follow the applicable standard.

Standard-oriented scope

Designed for IEC 60811-412, IEC 60335-1:2004 Clause 22.32 and related IS cable-material ageing procedures.

Controlled laboratory environment

Pressure and temperature are set within the rated equipment capability to reproduce the required pressure-ageing condition.

Post-ageing evaluation support

After exposure, specimens are normally conditioned and assessed for tensile strength, elongation, retention of properties or visual deterioration.

KP6551

Oxygen / Air Bomb Aging Chamber



DUAL TEST MEDIA

PRESSURE AGEING

MATERIAL SPECIMENS

Typical Laboratory Workflow

1 Prepare

Prepare and condition specimens.

2 Load

Suspend samples with required spacing.

3 Pressurize

Introduce oxygen or compressed air.

4 Age

Maintain specified conditions.

5 Evaluate

Condition and compare results.

Detailed Technical Specifications

Standard and Test Scope

Parameter	Specification
Product model	KP6551
Applicable standards	IEC 60811-412; IEC 60335-1:2004 Clause 22.32; IS 9968 Parts 1 & 2; IS 6380; IS 10810 Part 16
Test objects	Cable insulation, sheathing, rubber, elastomeric and applicable polymer specimens
Test media	Oxygen and compressed air
Main purpose	Accelerated pressure-ageing before post-exposure evaluation

Representative Operating Information

Item	Catalogue information
Oxygen purity	Not less than 97% for the representative oxygen method
Representative pressure	2.1 +/- 0.07 MPa
Representative temperature	70 +/- 1 C
Representative duration	96 hours
Gas supply	Oxygen and compressed-air connection arrangement according to project scope
Safety functions	Overpressure protection, temperature protection, vessel locking and controlled pressure release
Specimen capacity	Depends on specimen dimensions, spacing and holder arrangement

Equipment Configuration

Parameter	Specification
Maximum working pressure	2.5 MPa
Temperature range	Ambient temperature to 200 C
Temperature deviation	+/-0.5 C
Effective chamber volume	4000 cm3
Pressure vessel / enclosure	Stainless-steel inner vessel; coated steel outer enclosure
Power supply	AC 220 V +/-10%, 50/60 Hz
Control	Digital temperature display and intelligent control

Technical Note

The 2.5 MPa value is the equipment maximum working pressure, not the required pressure for every standard. The representative oxygen conditions shown above are one application program and should not be treated as the only supported test condition. Final parameters must follow the applicable standard edition and material specification.

Test Principle and Workflow

Pressure-Ageing Test Concept



Core Equipment Values

Maximum pressure 2.5 MPa

Temperature Ambient to 200 C

Chamber volume 4000 cm³

Temperature deviation +/-0.5 C

Mode Distinction

Oxygen bomb ageing: pressurized oxygen for rubber, elastomeric and cable-material procedures where oxygen-pressure ageing is specified.

Air bomb ageing: pressurized compressed air for IEC 60811-412 and related cable-material procedures.

Six-Step Operating Sequence

1 Prepare specimens

2 Load and space samples

3 Close and lock vessel

4 Introduce test medium

5 Maintain ageing conditions

6 Release and evaluate

Applicable Standards and Representative Conditions

The chamber supports different pressure-ageing procedures. The applicable standard edition, material category and specified operating conditions should be confirmed before formal testing.

Applicable Standards

IEC 60811-412

Air bomb ageing of crosslinked and thermoplastic cable insulation and sheathing materials.

IEC 60335-1:2004 Clause 22.32

Oxygen bomb ageing application for relevant rubber and insulating materials in household and similar appliances.

IS 10810 Part 16

Accelerated heat ageing under oxygen pressure for cable insulation and sheath materials.

IS 9968 Parts 1 & 2 / IS 6380

Related elastomer-insulated cable and elastomeric insulation or sheath material testing.

Representative Oxygen Bomb Conditions

OXYGEN PURITY

$\geq 97\%$

TEST PRESSURE

$2.1 \pm 0.07 \text{ MPa}$

TEST TEMPERATURE

$70 \pm 1 \text{ }^{\circ}\text{C}$

AGEING DURATION

96 h

These values describe a representative IEC 60335-1 oxygen-pressure application. They are not the only operating program supported by the equipment.

Oxygen Bomb vs. Air Bomb Ageing

Test mode	Medium	Typical application
Oxygen bomb	Pressurized oxygen	Rubber, elastomeric and applicable cable materials
Air bomb	Compressed air	IEC 60811-412 insulation and sheathing compounds



Applications, Evaluation and Safety



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Typical Test Objects

Cable insulation, cable sheathing, rubber-insulated wires, vulcanized rubber, crosslinked or thermoplastic compounds and relevant appliance elastomeric parts.

Post-Ageing Evaluation

Tensile strength, elongation at break, mechanical-property retention, visual inspection, cracking or surface deterioration and comparison with unaged specimens.

Installation and Safety

Use trained personnel, stable installation, reliable grounding, suitable ventilation, clean oxygen-service components, vessel locking and gradual pressure release.

Calibration and Documentation

Pressure and temperature documentation, operating manual, inspection records and project-specific calibration requirements should be agreed before quotation.

The chamber performs the controlled exposure stage; separate tensile or other evaluation equipment may be required for a complete material assessment.

Technical Inquiry and Expert Support

KingPo can review the required standard, test medium, sample type, operating conditions, specimen holder, gas connection scope and documentation before quotation.

Please Provide the Following Information

Applicable standard: IEC 60811-412, IEC 60335-1:2004 Clause 22.32, IS 9968, IS 6380, IS 10810 Part 16 or internal procedure



Required test mode: oxygen bomb ageing, compressed-air bomb ageing or both



Specimen material: cable insulation, cable sheath, vulcanized rubber, elastomeric component or polymer specimen



Required conditions: pressure, temperature and ageing duration specified by the selected method



Specimen arrangement: dimensions, expected quantity and holder requirements



Gas supply: oxygen source, compressed-air source, regulator and connection conditions



Documentation: datasheet, operating manual, inspection record and pressure or temperature documentation



Product Page



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