Electrical Passive Fire Protection for Beverage Plants

Substations · Cable Galleries · Control Rooms · Safety-Critical Circuits

Section A | Electrical Zone-Wise Fire Risk Map

A1. Substations, MCC Rooms & Cable Galleries

Main substation, bottling hall MCC, PET blow moulder panels, warehouse distribution, and the plant control room.

Area	Fire Scenario	Stanvac PFP Product Application	Rating / Priority
Main substation	Transformer + cable fire	Cable coatings, firestops, panel FP	**Critical**
Bottling hall MCC (filler, capper, labeller)	Cable + motor fire	Panel FP, cable coatings, firestops	**Critical**
PET blow moulder control panels	Heater + motor fire	Panel FP, cable coatings	**High**
Pasteurizer / UHT / aseptic filler electrical	Hot product + cable fire	Panel FP, cable coatings	**High**
CO_2 / N_2 plant electrical	Cable fire	Panel FP, cable coatings	**Medium**
Warehouse electrical distribution	Class A fire load adjacent	Panel FP, firestops	**Critical**
Boiler / hot water / CIP electrical	Fuel fire	Panel FP, firestops	**High**
Compressor house MCC	Lube oil + cable fire	Panel FP, cable coatings	**High**
Cold storage / chiller electrical	Cable + refrigerant fire	Panel FP, firestops	**High**
DG room	Fuel + lube oil fire	Panel FP, firestops, cable coatings	**Critical**

A2. Safety-Critical Electrical Systems

Area	Fire Scenario	Stanvac PFP Product Application	Rating / Priority
Fire water pump house	Must survive the fire it fights	Fireproofed structure, FR cables	**Critical**
CO_2 leak detection (asphyxiation)	O_2 depletion alarm	Fire-survival cable	**Critical**
Evacuation lighting + sprinkler supervisory	Life safety + sprinkler integrity	Fire-survival cable	**Critical**

Section B | Product-to-Application Matrix

This section maps each of the four priority Stanvac product lines to the specific beverage plants locations and circuits where they must be specified. Use these tables to build the bill of quantities (BOQ) for any beverage plants opportunity.

B1. Cable Coatings — Fire Propagation Prevention

Minimum 240 minutes protection, thickness ≤ 1.6 mm DFT.

Purpose: prevent the spread of fire along cable trays, risers and bunches. The "Browns Ferry" scenario — one cable igniting an entire cable gallery — is the design basis.

Applicable standards: IEC 60332-3 (FM 3971 has limited use — it provides only short-duration protection against arcs and sparks)

Zone	Specific Application	Priority
Main substation cable gallery	All HT and LT trays	**Critical**
MCC cable trenches	Bottom-entry cable bunches	**High**
Filler / capper line cable routes	Motor and control	**Medium**
PET blow moulder cable routes	Heater and motor	**High**
Warehouse perimeter cable routes	Lighting and sprinkler system	**High**
CO_2 / N_2 plant cable routes	Motor and instrumentation	**Medium**
Compressor house cable trays	Motor and control	**High**

Zone	Specific Application	Priority
Boiler cable routes	Fuel and process	**High**
DG room cable entries	Start, alternator, control	**Critical**
Chiller / cooling tower cable routes	Motor and control	**Medium**

B2. Cable Coatings — Fire Survivability

240-minute circuit integrity, thickness ≤ 1.6 mm DFT.

Purpose: keep the cable electrically functional while burning, so the safety circuit continues to operate through the fire event. Fire-survival coatings are specified where loss of the circuit would defeat the fire-fighting or shutdown system itself.

Applicable standards: IEC 60331-21 and IS 17505-1

Circuit Type	Where Applied	Priority
Fire water pump power (electric + diesel)	Switchgear to motor	**Non-negotiable**
Emergency DG start & transfer	Battery to engine panel	**Critical**
Emergency lighting + PA / GA	Plant-wide egress	**Critical**
Sprinkler system supervisory	Flow switch, tamper switch	**Critical**
Heat / smoke detection	Detector to panel	**Critical**
UPS feeders to DCS / SCADA	UPS to marshalling	**High**
CO_2 leak detection (asphyxiation)	O_2 depletion alarm	**Critical**
Boiler trip circuits	Fuel trip valve	**High**
PET blow moulder heater trip	Overheat protection	**High**
Aseptic filler sterilization trip	UHT safety interlock	**High**

B3. Electrical Panel Fireproofing

Purpose: protect field control panels, junction boxes, MCC panels and logic cabinets from external fire and internal electrical fire. Stanvac offers three complementary solutions under this product line.

Option	Stanvac Solution	Description & Typical Use
A	Two-hour rated firestop sealant	For sealing cable gland openings, panel cut-outs, conduit entries and small penetrations at the panel boundary. Silicone / acrylic intumescent sealant certified to UL 1479 / IS 12458 at 2-hour rating.
B	Non-combustible intumescent paint	For external coating of panel enclosures, cable glands and junction boxes exposed to radiant heat or hydrocarbon fire. Non-combustible base with intumescent top-coat.
C	Two-hour rated intumescent translucent coating for small-dia. cables (aerosol spray)	Aerosol-delivered translucent intumescent coating for small-diameter instrumentation, control and signal cables entering panels. Clean application in congested panel interiors; 2-hour rated.

B4. Two-Hour Rated Firestop Barriers

Hybrid combination of mineral wool and firestop mortar.

Purpose: seal every penetration through a fire-rated wall, floor or cable tunnel so compartmentation is maintained. Stanvac's hybrid system combines high-density mineral wool (for bulk void filling and thermal insulation) with firestop mortar (for load-bearing, smoke-tight surface seal). This dual-material approach delivers superior 2-hour rating performance across a wider range of penetration sizes than single-material systems.

Applicable standards: UL 1479 · ASTM E814 · IS 12458

Location	Specific Application	Priority
Main substation cable trench to building	Sand-seal + firestop pillows + mortar	**Critical**
MCC room cable entries	Trench and wall penetrations	**Critical**
Warehouse compartment walls	Cable and conveyor penetrations	**Critical**
PET plant to bottling hall boundary	Cable penetrations	**Medium**
Cold storage boundary	Cable and refrigerant pipe penetrations	**High**
Boiler room boundary	Fuel and cable penetrations	**High**
DG room boundary	Fuel and cable penetrations	**Critical**
Fire water pump house entries	Power and control cable penetrations	**Critical**
Battery / UPS room boundary	Cable and ventilation duct penetrations	**Medium**
HVAC duct penetrations	Fire dampers + collar seals	**Medium**

Location	Specific Application	Priority
Compressor house boundary	Cable penetrations	**High**

Detailed product data sheets, certifications, specimen specifications and project BOQ support are available on request.

For more information, please connect with us.

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