

WORLD CLASS MINERALS AND ENERGY SECTORS THROUGH SUSTAINABLE DEVELOPMENT

DEPARTMENT OF MINERALS AND ENERGY



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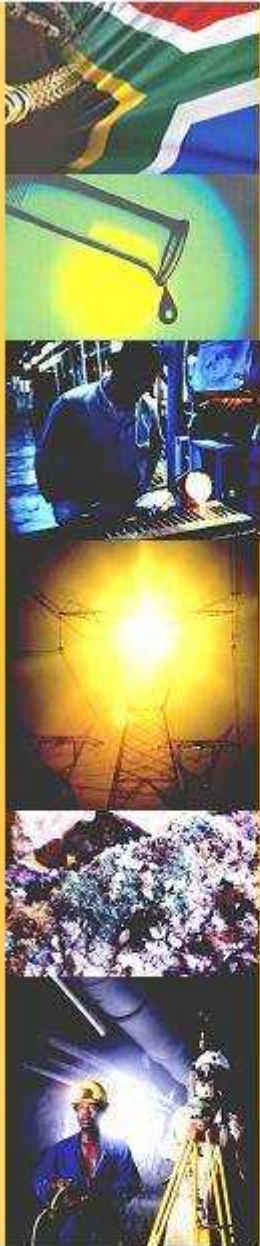
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Minerals and Energy
REPUBLIC OF SOUTH AFRICA

Conveyor Belts

Definitions

“**conveyor belt installation**” means a mechanical system used for the transportation of minerals, material, or persons on a belt.

“**power supply**” means any energy source feeding the drive motor of a *conveyor belt installation*





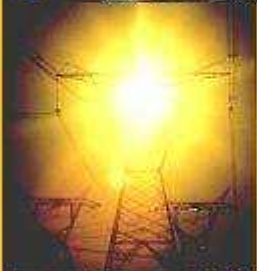
1) The employer must take reasonably practicable measures to prevent persons from being injured as a result of them, the clothes being worn by them or any equipment being held by them coming into contact with or being drawn into any moving part of a *conveyor belt installation*. Such measures could include guarding all moving parts of the *conveyor belt installation*.



- 2) The measures contemplated in regulation 1 must include measures to ensure that –
- (a) a *conveyor belt installation* is not cleaned when any of its parts are in motion;
 - (b) the *power supply* of a stationary *conveyor belt installation* is locked-out during repairs, maintenance, routine cleaning and cleaning of spillage;
 - (c) the driving machinery of the *conveyor belt installation* can be stopped by any person from any point, along its length where access to the belt is possible;
 - (d) the driving machinery of the *conveyor belt installation* is stopped should the belt break, jam or slip excessively;

Regulations cont

- (e) persons are prevented from entering any side of a *conveyer belt installation* where there is no walk way, unless means has been provided to do so safely;
- (f) one or more devices are fitted and used to give all persons at any point where access to the *conveyer belt installation* is possible sufficient prior warning that any part of such a *conveyer belt installation* is about to be put in motion;
- (g) the take up or belt tensioning device will not move during repairs, routine cleaning, cleaning of spillage, maintenance or belt splicing;
- (h) where two or more *conveyer belt installations* are used in series, sequence interlocking is provided which automatically will-
 - (i) stop all *conveyer belt installations* feeding a belt conveyor that has stopped; and
 - (ii) prevent a conveyor belt from starting until the belt conveyor onto which it feeds is moving;



Regulations (cont)

(3) The employer must take reasonably practicable measures to prevent persons from being injured by material or mineral falling from a *conveyor belt installation*, which measures must include the fitting and use of one or more devices to prevent run-back or run-on; when such *conveyor belt installation* is stopped;

(4) The employer must take reasonably practicable measures to prevent persons from being exposed to fires, fumes or smoke arising from a *conveyor belt installation* catching fire, including instituting measures to prevent, detect and combat such fires.

(5) The employer must take reasonably practicable measures to prevent persons from being injured as a result of the breaking, misalignment or damage of a belt conveyor due to any mineral, material or coal dust accumulating on or around the moving parts of any *conveyor belt installation*.





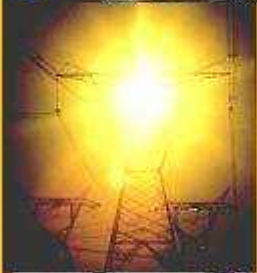
Regulations Cont

(6) The employer must take reasonably practicable measures to prevent persons at or near *conveyor belt installations* from being injured due to lightning directly or indirectly striking the installation.

(7) The employer must take reasonably practicable measures to ensure that the use, operation and inspection of man-riding conveyors comply with SANS 10266: 2006 – Edition 1 “The safe use, operation and inspection of man-riding belt conveyors in mines”.

The normative references in SANS 10266: 2006 not applicable to the employer.

(8) The employer must take reasonable measures to ensure that the functionality of the devices contemplated in regulation 8.9(2)(f) and (g) and of any other safety devices relating to the *conveyor belt installation* are tested weekly.



Regulations cont

(9) The employer must ensure that a written procedure is prepared and implemented for conveyor belt splicing, joining and repairing and for the safe use of chemicals during such splicing, joining and repairing.



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Code of Practice

Section 8

ASPECTS TO BE ADDRESSED IN THE MANDATORY CODE OF PRACTICE

The **COP** must set out how the significant risks identified and assessed in terms of the risk assessment process

The **COP** must cover at least the aspects set out below unless there is no significant risk associated with that aspect at the mine.

8.1 Design

8.1.1 In order to prevent persons from being injured as a result of a **conveyor belt installation** collapsing, catching fire, a belt breaking or misalignment of the conveyor belt due to incorrect design, the COP must set out the design criteria for the belt conveyor installation, covering at least the following -

- overall structural design;



Cop cont

- environmental conditions that could effect the integrity of the **conveyor belt installation**;
- an appropriate drainage system along the **conveyor belt installation** to ensure efficient draining of water used for cleaning, dust suppression and prevent water seepage onto the belt conveyer installation;
- appropriate **power supply** and braking systems; conveyor belt extensions;
- materials of which the conveyor belt is made in order to minimise the risk of igniting flammable gas or dust during installation or operation; and
- materials of which the conveyor belt is made in order to minimise the risk of any part of the conveyor belt catching fire;
- visibility (reflective paint tape etc).



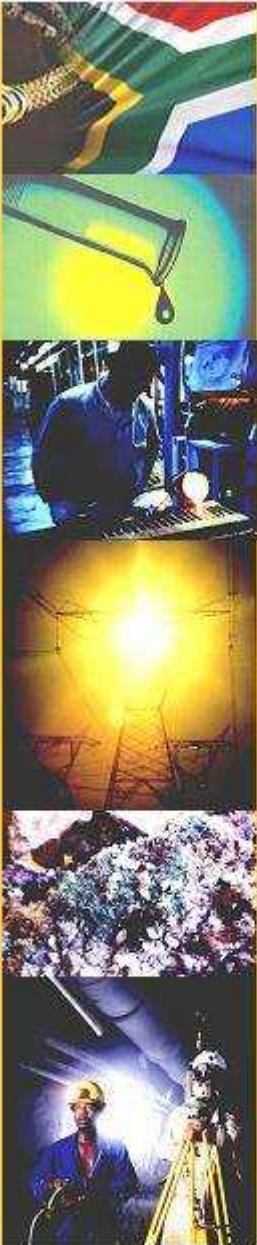
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8.1.2 In order to prevent persons from being injured while crossing over or under any **conveyor belt installation** by means of a bridge, the COP must cover at least the following-

- clearance requirements for persons and vehicles;
- handrails and kickboard requirements;
- prevention of slipping/sliding/falling;
- sufficient number of cross over walkways;
- method of access to walkway;
- illumination; and
- visibility (reflective paint tape etc).

8.1.3 In order to prevent persons from being injured due to inappropriate walkways while doing inspection, maintenance or repairs on the **conveyor belt installation**, the COP must cover at least the following-

- safe clearances along and around belt conveyor installations or adjacent thereto; and
- measures to prevent slipping, sliding and falling around and adjacent to **conveyor belt installations**.



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8.2 Installation, extension, dismantling, transport and re-installation

In order to prevent persons from injury during installing, extension, dismantling, transportation and re-installing of **conveyor belt installations** due to the installation collapsing, the belt breaking or running away, the **COP** must at least address the following:

- Means of installing the belt conveyor safely;
- Means of cutting, joining and extending any belt safely;
- Means of clamping any belt safely;
- Means of pulling any belt in safely;
- The chemicals to be used during belt extensions and measures to address the risks associated with such chemicals;
- Means of transporting any belt and structure to its new site or position;
- Means to test the **conveyor belt installation** after installation and extension; and
- Supporting the roll of belting on tressles.



8.3 Maintenance and Repairs

In order to prevent injury to persons as a result of inadequate maintenance, repairs and splicing of *conveyor belt installations* the **COP** must address the scheduling of maintenance, inspections and over inspections. This should include identification of components critical for the safe operation of the *conveyor belt installation* and the regular inspection of these components. Such components include the following-

- Belt Drive – all pulleys
- Belt scrapers/Belt cleaning devices
- Belt Drive motor / gearbox / fluid coupling / brakes / runback device
- Installation of guards / nip angles
- Belt illumination
- Conveyor belt
- Take-up pulley and limits
- Stop switches and trip wire
- Pre start warning devices
- Tail End – all pulleys



- Belt slip devices
- Sequence interlocking
- belt adhesives and mechanical fasteners
- belt cleaning chemicals
- Rigging
- Welding
- Grinding
- exposure to toxic liquids or fumes
- Dust
- emergency preparedness
- the use of hazardous substances associated with operation and maintenance; and
- belt cleaning devices.



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8.4 Fire prevention

In order to prevent persons from being exposed to fires, fumes and smoke arising from a *conveyor belt installation* catching fire, the COP must set out measures to prevent, detect and combat such fires. Such measures should include measures to prevent persons from being exposed to chemicals released when a **conveyor belt installation** is ignited. The **COP** should also set out:

- a description of the design and the selection criteria for the belt conveyor installation (SANS 971-2003, Edition 3 – “Fire-retardant textile-reinforced conveyor belting (for use in fiery mines)” may be referenced for guidance); and
- criteria for determining the location and length of a belt.

(Cognisance must be taken of frictional ignition for example limit switches and scrapers)

Side note: The regulations and guidelines under Fires and Explosions and the Mine Environmental Engineering and Occupational Hygiene must be consulted as well as the Guideline for a Mandatory Code of Practice for the prevention of Flammable Gas and Coal Dust Explosions in Collieries.