




TRANSNET FREIGHT RAIL

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1 Scope

This specification qualify the purity and dryness of compressed air generated in locomotives, yard chargers, wagon workshops and supplying air to wagon brake systems. Dry air in wagon brake system reduces the possibilities of undesired emergency brake application (UDE) [extracted from the Association of American Rail Roads (AAR) research]. Dry air in wagon and locomotive brake valves ensures longer, fault free operation extended life cycles, between overhauls.

2 Introduction

Air is taken from the atmosphere through a compressor at a pressure of ±1bar and delivered to a required pressure, however the air is found to have impurities that cause contamination in the brake system. There are three basic types of contaminants found in compressed air namely:

- Solid particles
- Water vapour
- Oil content

The quality of air is determined by the air dryness and contamination level. Clean oil free and dry air is essential for the reliable and consistent operation of brake valves, preventing premature system failures, increasing equipment life and reducing maintenance cost.

3 Compressed air purity classes:

The compressed air specification for wagon and locomotive brake system: **ISO 8573-1, 2 3 1** (classes for A, B, C)

3.1 Solid particles

Class	Maximum number of particles per m3 (see clause 5)				Particle size µm	Concentration Mg/m ³
	Particle size, d µm					
	d ≤0.10	0.10 < d ≤0.5	0.5 < d ≤1.0	1.0 < d ≤5.0		
2	Not specified	100 000	1 000	10	N/A	N/A

Table : 1

Solid particles properties are important and characterized by density, shape, size and hardness. The acceptable solid particle size for Freight Rail is class 2 as shown in the table above.

3.2 Humidity and liquid water classes

The water carrying capacity of air is more dependent on increase in temperature than decrease in absolute pressure, such that, as air is compressed, the increase in temperature has a larger effect than the increase in pressure and the air is capable of carrying more water

Class	Pressure dewpoint °C
3	≤ -20

Table:2

The acceptable humidity class for Freight Rail is class 3, as shown in the table above; but with a value of ≤ -15°C for the pressure dewpoint.

3.3 Oil content

Class	Concentration total oil (aerosol, liquid and vapour) Mg/m ³
2	≤ 0.1

Table: 3

The acceptable oil content for Freight Rail is class 1 as shown in the table above.

4 Compulsory testing

Reliable production of clean and dry compressed air is a critical feature for wagon and locomotive brake systems. All locomotives, yard chargers and work shop air points supplying air to wagon brake systems, must be tested for compliance annually to this specification doc no (RS 2007/122). If the compressed air test results are inferior to the classes as specified in this specification, the air dryer and filter must be repaired or improved until the compressed air reaches the required purity classes.

5 References

ISO – Standard 8573-1
 ISO – Standard 8573-2
 ISO – Standard 8573-3
 ISO – Standard 8756