



Why Use 3M™ Novec™ Fluid HFE-72DE to replace nPB?

- 1 DEFRA state the labelling for nPB based solvents should be as follows :-
R11 Highly flammable.
Repr Cat 2; R60 May impair fertility.
Repr Cat 3; R63 Possible risk of harm to the unborn child.
R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation
R36/37/38 Irritating to eyes, respiratory system and skin
R67 Vapours may cause drowsiness and dizziness.

nPB based solvents are therefore Classified as CMRs (Carcinogenic, Mutagenic or Reproductive Toxin) by the SED (Solvent Emissions Directive 1999-13-EC)

Novec HFE-72DE fluid is not classed as a CMR and does not carry any of these Risk Phrases.

- 2 ACGIH (American Conference of Industrial Hygienists) TLV Exposure Guideline for nPB is 10ppm. OSHA (Occupational Safety & Health Administration) has a TWA of 25ppm.

TLV TWA for Novec HFE-72DE fluid is 200ppm.

- 3 The Solvent Emissions Directive allows exemption below 1 (one) tonne per annum consumption for nPB (as with all CMR category solvents) and requires substitution in shortest possible time.

Novec HFE-72DE fluid has a 2 (Two) Tonne per annum exemption and no requirement to be substituted.

- 4 Ozone depletion. nPB has an Ozone depletion Potential of around 0.02 (Latitude dependant).

Novec HFE-72DE fluid has Zero Ozone Depletion Potential.

- 5 nPB Requires Extraction of Vapours and must comply with the emission limit of 2mg/m³.

Novec HFE-72DE fluid does not require Extraction and has Emission Limit of 75 mg C/Nm³.

- 6 nPB consumes much higher volumes of Solvent.

Novec HFE-72DE fluid has beneficial properties (Surface tension, vapour pressure, viscosity, heat of vaporisation & boiling point) which ensure far less solvent is used in a like-for-like comparison. In conjunction with Novec fluid not requiring extraction, total solvent usage is reduced dramatically.

- 7 HFE-72DE won't clean like nPB does...

Repeated comparative trials with Novec HFE-72DE fluid have shown no loss of cleaning performance in the vast majority of applications. Particulate cleaning is much improved with Novec, as is cleaning of blind holes and fine features.

- 8 Acid Acceptance, energy consumption, plant requirements...

Novec HFE-72DE fluid is inherently stable and does not need acid acceptance testing or maintenance of stabilisers. The thermal properties of HFE-72DE require less energy to operate the cleaning plant.

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