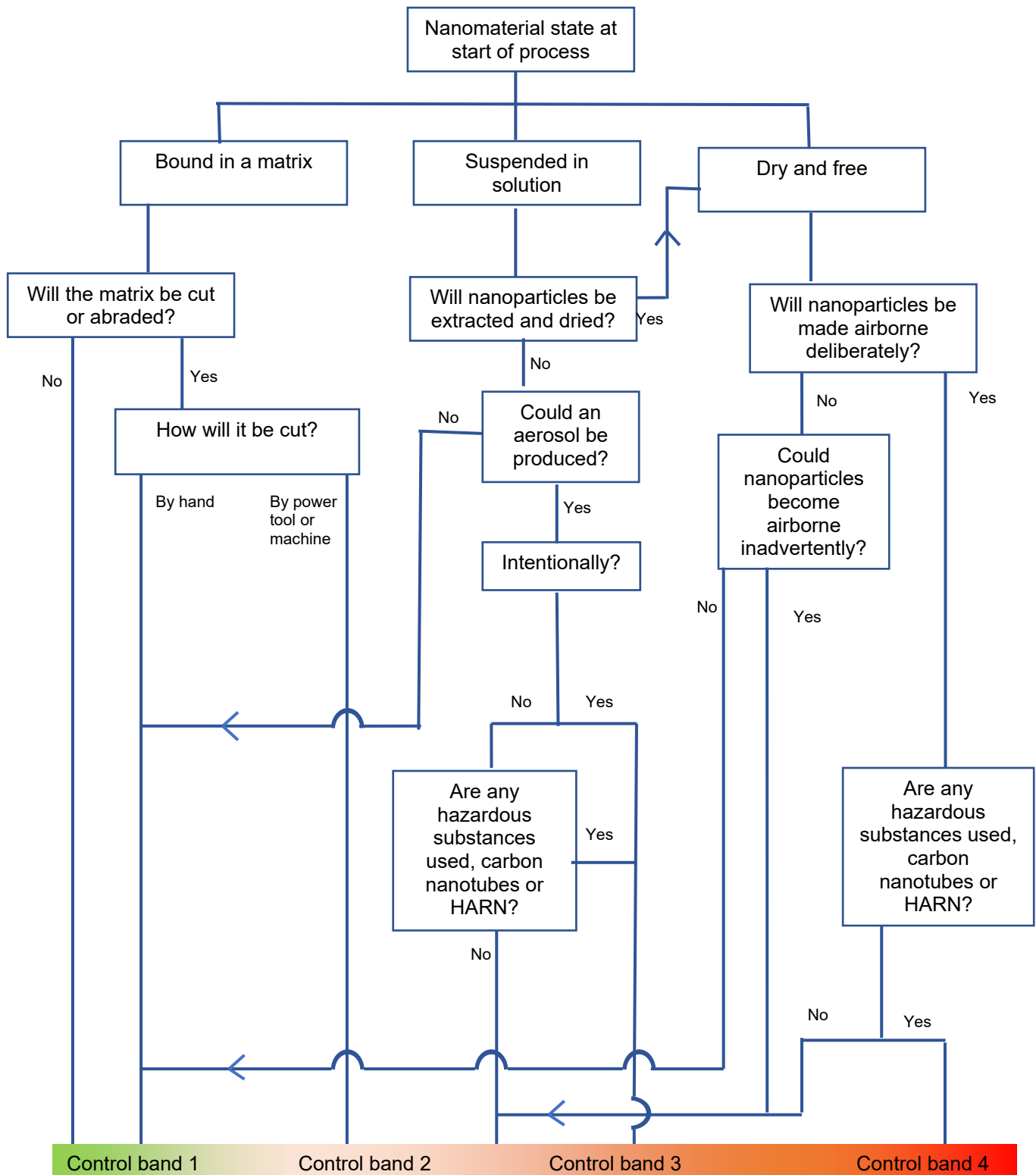




Reference document: HS933 Working with Nanomaterials Guideline

Use the following flow chart and risk control banding to help determine control measure to put in place. Risk control banding makes assumptions and has limitations so should be used only to inform your HS017 Risk Management Form for the project. In some cases, a **mixture of two risk control bands** may need to be implemented.



Control Band 1 Checklist

Low Risk Tasks: Tasks with little or no potential for being exposed to nanomaterial dusts and aerosols (e.g., Working with extruded polymers containing nanomaterials e.g., painting or coating finished products_ . Bound or fixed material, there should be no mechanical abrasion or thermal stresses that might crack the material).

Engineering controls:

Negative pressure work area if potential dust generation
Local exhaust ventilation if potential dust generation
Ventilation (if used): Single pass exhaust to external environment
Wet cutting of solid articles

Personal protective equipment:

Lab coat
P2 particulate respirator (disposable or half-face) if potential dust
Gloves (of a material suitable to the substance being handled)
Close fitting safety glasses if projectile risk

Spills:

Spill kit readily available

Control Band 2 Checklist

Moderately Low Risk Tasks: Tasks where there is a low potential for being exposed to nanomaterial dusts and aerosols (e.g., extrusion of materials containing nanomaterials).

Engineering controls:

Negative pressure work area
Fume cupboard
Local exhaust ventilation for large quantities (>1kg) with low exposure risk
Ventilation: Single pass to external environment (HEPA filter not normally needed)
Wet cutting of solid

Personal protective equipment:

Tyvek lab coat
P2 particulate respirator (disposable or half-face) if potential dust
Gloves (of a material suitable to the substance being handled)
Close fitting safety glasses
Long trousers (no cuffs)

Spills:

Disposable over-booties
Bunds and drain covers readily available
Spill kit readily available

Control Band 3 Checklist

Moderately High Risk Tasks: Tasks where there is the potential for being exposed to dusts and aerosols (e.g., blending nanomaterials into polymers, cutting or grinding polymers containing nanomaterials if nanomaterials can be released from the matrix).

Engineering controls:

Negative pressure work area
Sealed glove box / enclosed balance for weighing
Local exhaust ventilation for large quantities (>1kg) with low exposure risk
Ventilation: Single pass through HEPA filtered exhaust to external environment (may need to be fitted with scrubbers)
Intrinsically safe electrical system if high dust potential
Wet cutting of solids

Administrative controls:

Material stored in sealed containers (double contained)
Absorbent paper/sticky mat used to capture any spills
Work surfaces wiped with wet absorbent paper towels

Dedicated nanomaterial work zone
Nanomaterial work record kept
<i>Personal protective equipment:</i>
P2 particulate respirator (disposable or half-face) under normal operation
Tyvek lab coat
Close fitting safety glasses
Gloves (of a material suitable to the substance being handled)
Long trousers (no cuffs)
<i>Spills:</i>
Full Tyvek coverall and hood
P3 particulate respirator (full face)
Disposable over-booties
Bunds and drain covers readily accessible
Equipment: Sealed containers, mops, mist or fog generating equipment, light coloured wet wipes.

Control Band 4

High Risk Tasks: Tasks that are likely to produce dusts, aerosols and or significant personal exposure (e.g., growing, production, scraping, packing, unpacking, measuring or mixing dry nanomaterials).

Engineering controls:

Fully isolated work area with remote control operations
 Intrinsically safe electrical systems
 Ventilation: Single pass through HEPA filtered exhaust ventilation to external environment fitted with scrubbers
 Wet cutting of solid articles

Administrative controls:

Local protocol for entering the isolated workroom
 Material stored in sealed containers (double contained)
 Absorbent paper/sticky mats used to capture any spills
 Work surfaces wiped with wet absorbent paper towels
 Nanomaterial work record kept
 Waste double bagged
 Occupational hygienist may be required

Personal protective equipment:

Full Tyvek coverall and hood
 P2 or P3 respirator
 Double gloves
 Disposable over-booties for shoes
 Close fitting safety glasses
 Long trousers (no cuffs)

Spills:

P3 particulate respirator (full face)
 Bunds and drain covers readily accessible
 Equipment: Sealed containers, wet HEPA vacuum, mops with disposable head, mist or fog generating equipment, light coloured wet wipes.