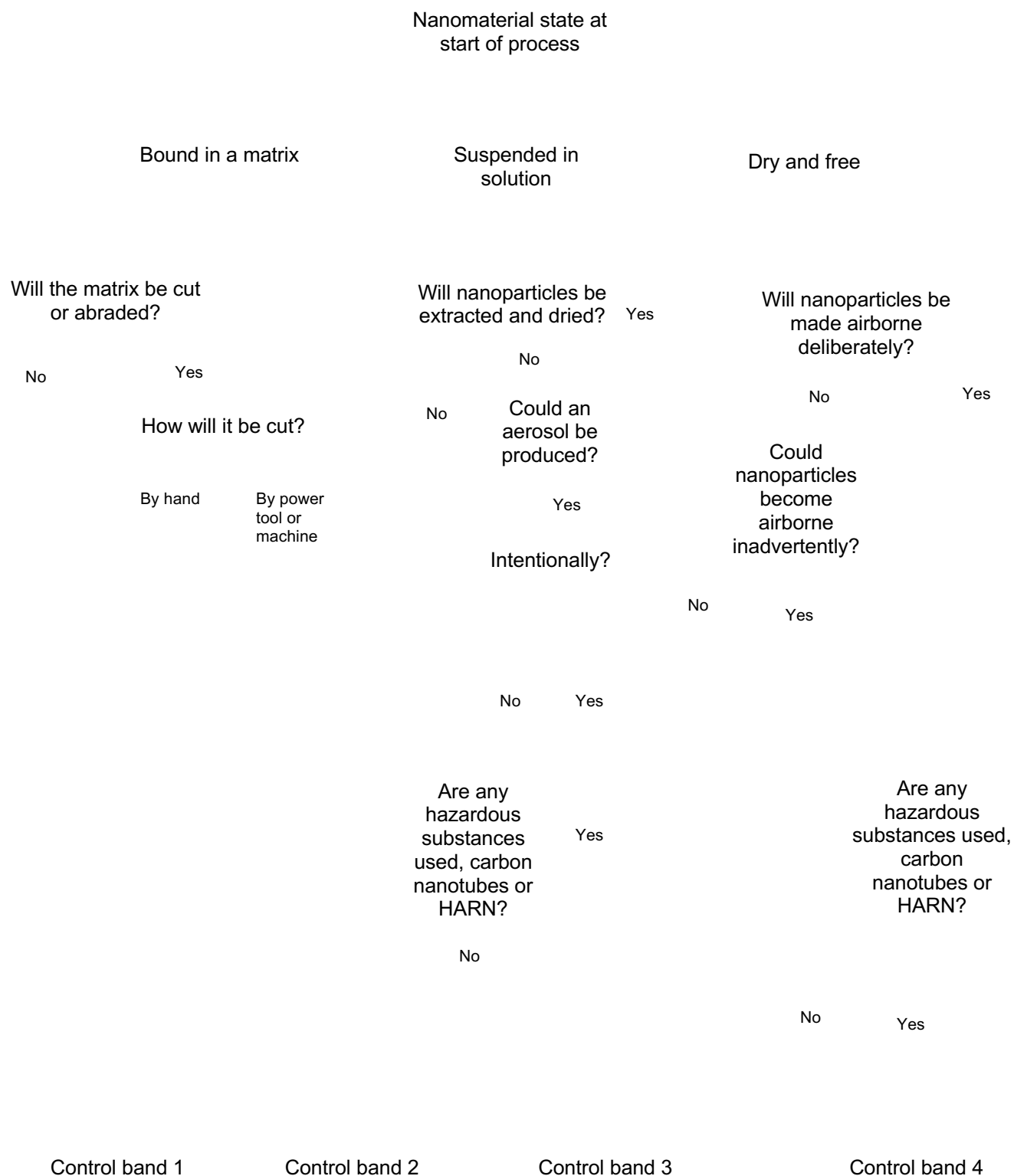




Reference document: HS933 Working with Nanomaterials Guideline

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).**

|   |
|---|
| <i>Engineering controls:</i>  |
| 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   |
| <i>Administrative controls:</i>   |
| 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  |
| <i>Personal protective equipment:</i>   |
| Full Tyvek coverall and hood  |
| P2 or P3 respirator   |
| Double gloves   |
| Disposable over-booties for shoes   |
| Close fitting safety glasses  |
| Long trousers (no cuffs)  |
| <i>Spills:</i>  |
| 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. |