Best Available Techniques (BAT)

Chapters in the BAT conclusions for the food, drinking and dairy industries relevant for use of bag filters for reduction of emissions

- Animal feed - Chapter 2
- Brewing - Chapter 3
- Dairies - Chapter 4
- Grain milling - Chapter 8
- Oilseed processing and vegetable oil refining - Chapter 10
- Starch production - Chapter 12

Chapter 2 – Animal feed – BAT 17

Emissions to air

BAT 17. In order to reduce channelled dust emissions to air, BAT is to use one of the techniques given below.

	Technique	Description	Applicability
a	Bag filter	See Section 14.2.	May not be applicable to the abatement of sticky dust.
b	Cyclone		Generally applicable.

BAT-associated emission levels (BAT-AELs) for channelled dust emissions to air from grinding and pellet cooling in compound feed manufacture

Parameter	Specific process	Unit	BAT AEL (average over the sampling period)	
			New plants	Existing plants
Dust	Grinding	mg/Nm³	< 2-5	< 2-10
	Pellet cooling		< 2-20	

The associated monitoring is given in BAT 5.

SIMATEK

Chapter 3 – Brewing – BAT 20

Emissions to air

BAT 20. In order to reduce channelled dust emissions to air, BAT is to use a bag filter or both a cyclone and a bag filter.

BAT-associated emission levels (BAT-AELs) for channelled dust emissions to air from handling and processing of malt and adjuncts

Parameter	Unit	BAT-AEL (average over the sampling period)	
		New plants	Existing plants
Dust	mg/Nm^3	< 2-5	< 2-10

The associated monitoring is given in BAT 5.

SIMATEK

Chapter 4 – Dairies – BAT 23

Emissions to air

BAT 23. In order to reduce channelled dust emissions to air from drying, BAT is to use one or a combination of the techniques given below.

Technique		Description	Applicability
(a)	Bag filter	See Section 14.2.	May not be applicable to the abatement of sticky dust.
(b)	Cyclone		Generally applicable.
(c)	Wet scrubber		

BAT-associated emission level (BAT-AEL) for channelled dust emissions to air from drying

Parameter	Unit	BAT-AEL (average over the sampling period)
Dust	mg/Nm^3	< 2-10 (1)

(1) The upper end of the range is 20 mg/Nm^3 for drying of demineralised whey powder, casein and lactose.

The associated monitoring is given in BAT 5.

SIMATEK

Chapter 8 – Grain milling – BAT 28

Emissions to air

BAT 28. In order to reduce channelled dust emissions to air, BAT is to use a bag filter.

BAT-associated emission level (BAT-AEL) for channelled dust emissions to air from grain milling

Parameter	Unit	BAT-AEL (average over the sampling period)
Dust	mg/Nm^3	< 2-5

The associated monitoring is given in BAT 5.

SIMATEK

Chapter 10 – Oilseed processing and vegetable oil refining – BAT 31

Emissions to air

BAT 31. In order to reduce channelled dust emissions to air, BAT is to use one or a combination of the techniques given below.

Technique		Description	Applicability
(a)	Bag filter	See Section 14.2.	May not be applicable to the abatement of sticky dust.
(b)	Cyclone		Generally applicable.
(c)	Wet scrubber		

BAT-associated emission levels (BAT-AELs) for channelled dust emissions to air from handling and preparation of seeds as well as drying and cooling of meal

Parameter	Unit	BAT-AEL (average over the sampling period)	
		New plants	Existing plants
Dust	mg/Nm³	< 2-5 (1)	< 2-10 (1)

(1) The upper end of the range is 20 mg/Nm³ for drying and cooling of meal.

The associated monitoring is given in BAT 5.

SIMATEK

Chapter 12 – Starch production – BAT 34

Emissions to air

BAT 34. In order to reduce channelled dust emissions to air from starch, protein and fibre drying, BAT is to use one or a combination of the techniques given below.

Technique		Description	Applicability
(a)	Bag filter	See Section 14.2.	May not be applicable to the abatement of sticky dust.
(b)	Cyclone		Generally applicable.
(c)	Wet scrubber		

Table 27

BAT-associated emission levels (BAT-AELs) for channelled dust emissions to air from starch, protein and fibre drying

Parameter	Unit	BAT-AEL (average over the sampling period)	
		New plants	Existing plants
Dust	mg/Nm³	< 2-5 (1)	< 2-10 (1)

(1) When a bag filter is not applicable, the upper end of the range is 20 mg/Nm³.

The associated monitoring is given in BAT 5.

SIMATEK

BAT 5 - monitoring

BAT 5. BAT is to monitor channelled emissions to air with at least the frequency given below and in accordance with EN standards.

Substance/ Parameter	Sector	Specific process	Standard(s)	Minimum monitoring frequency (1)	Monitoring associated with
Dust	Animal feed	Drying of green fodder	EN 13284-1	Once every three months (2)	BAT 17
		Grinding and pellet cooling in compound feed manufacture		Once every year	BAT 17
		Extrusion of dry pet food		Once every year	BAT 17
	Brewing	Handling and processing of malt and adjuncts		Once every year	BAT 20
	Dairies	Drying processes		Once every year	BAT 23
	Grain milling	Grain cleaning and milling		Once every year	BAT 28
	Oilseed processing and vegetable oil refining	Handling and preparation of seeds, drying and cooling of meal		Once every year	BAT 31
	Starch production	Drying of starch, protein and fibre			BAT 34

Section 14.2. Emissions to air

Technique	Description
Bag filter	Bag filters, often referred to as fabric filters, are constructed from porous woven or felted fabric through which gases are passed to remove particles. The use of a bag filter requires the selection of a fabric suitable for the characteristics of the waste gas and the maximum operating temperature.
Cyclone	Dust control system based on centrifugal force, whereby heavier particles are separated from the carrier gas.

SIMATEK