

BENTA 480 SL®



PEEL BACK FOR DIRECTIONS FOR USE LEAFLET

This product is a soluble concentrate containing 480 g/litre (40.3% w/w) bentazone as the sodium salt. BENTA 480 SL is a herbicide for post emergence broad leaved weed control in spring and winter field beans, broad bean, dwarf french bean, runner bean, combining pea, vining pea, linseed, ornamental plant production and potatoes.

IMPORTANT INFORMATION FOR USE ONLY AS AN AGRICULTURAL/HORTICULTURAL HERBICIDE

Crops	Maximum individual dose (litres product/hectare)	Maximum number of treatments (per crop)	Latest time of application
Field bean (winter)	3	One or Two as a split dose (see 'Other specific restrictions')	Up to and including 7 leaf pair stage
Dwarf french bean	3	One or Two as a split dose (see 'Other specific restrictions')	Before flower buds visible
Runner bean	3	One or Two as a split dose (see 'Other specific restrictions')	Before flower buds visible
Linseed	3	One or Two as a split dose (see 'Other specific restrictions')	Before flower buds visible
Field bean (spring)	3	One or Two as a split dose (see 'Other specific restrictions')	Before the crop exceeds 15 cm in height and before the 7 leaf pair stage
Broad bean	3	One or Two as a split dose (see 'Other specific restrictions')	Single dose – before the 5 leaf pair stage. Split dose – before the crop exceeds 15 cm in height and before the 7 leaf pair stage.
Vining pea, combining pea	3	One	Before flower buds can be found enclosed in the terminal shoot
Potato	3	One or Two as a split dose (see 'Other specific restrictions')	Before shoots exceed 15 cm in height
Ornamental plant production (narcissi)	3	One or Two as a split dose (see 'Other specific restrictions')	

Other specific restrictions:

A maximum of 3 litres product per hectare per crop must not be exceeded for split doses. This product must not be applied to ornamental plant production (narcissi) during flower bud formation. Do not re-use container for any purpose.

READ THE LABEL BEFORE USE. USING THIS PRODUCT IN A MANNER THAT IS INCONSISTENT WITH THE LABEL MAY BE AN OFFENCE. FOLLOW THE CODE OF PRACTICE FOR USING PLANT PROTECTION PRODUCTS.



WARNING

Harmful if swallowed
May cause an allergic skin reaction
Harmful to aquatic life with long lasting effects

Avoid breathing vapours / spray
Wear protective gloves / protective clothing
If skin irritation or rash occurs: get medical advice / attention
Wash contaminated clothing before reuse
Dispose of contents / container to a licensed hazardous waste disposal contractor / collection site except for empty clean containers which can be disposed of as non hazardous waste.

To avoid risks to human health and the environment, comply with the instructions for use.



This label is compliant with the CPA Voluntary Initiative Guidance.

Authorisation Holder:

Sharda Europe b.v.b.a - Jozef Mertensstraat 142, 1702 Dilbeek - Belgium
Tel : +32-2-4664444

Marketing Company:

Wyke Lane - Wyke - Bradford - West Yorkshire - BD12 9EJ - United Kingdom
Technical Helpline telephone number 01274 694714
24-hour emergency telephone number 01274 696603

PROTECT FROM FROST
KEEP DRY

5 L

 **Nufarm**
Grow a better tomorrow

SAFETY PRECAUTIONS

Operator protection

Engineering control of operator exposure must be used where reasonably practicable in addition to the following personal protective equipment:

WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS) AND SUITABLE PROTECTIVE GLOVES when handling the concentrate.

WEAR SUITABLE PROTECTIVE GLOVES when handling contaminated surfaces.

However, engineering controls may replace personal protective equipment if a COSHH assessment shows they provide an equal or higher standard of protection.

WASH CONCENTRATE from skin or eyes immediately.

DO NOT BREATHE SPRAY.

WASH HANDS AND EXPOSED SKIN before meals and after work.

WHEN USING DO NOT EAT, DRINK OR SMOKE.

IF YOU FEEL UNWELL, seek medical advice (show the label where possible).

Environmental protection

Do not contaminate water with the product or its container (Do not clean application equipment near surface water / Avoid contamination via drains from farmyards and roads).

Storage and disposal

KEEP IN ORIGINAL CONTAINER, tightly closed, in a safe place.

RINSE CONTAINER THOROUGHLY by using an integrated pressure rinsing device or manually rinsing three times. Add washings to sprayer at time of filling and dispose of safely.

The COSHH Control of Substances Hazardous to Health Regulations may apply to the use of this product at work.

DIRECTIONS FOR USE

IMPORTANT: This information is approved as part of the Product Label. All instructions within this section must be read carefully in order to obtain safe and successful use of this product.

BENTA 480 SL is a herbicide for post emergence broad leaved weed control in spring and winter field beans, broad bean, dwarf French bean, runner bean, combining pea, vining pea, linseed, ornamental plant production and potatoes.

1. RESTRICTIONS / WARNINGS

1.1. Weed control

The best weed control will be achieved if crops are sprayed when weeds are small and actively growing, provided the crop is within the correct growth stages, see below. It is essential to achieve full cover of all weed surface areas, especially the growing point. Therefore adjust spray volumes and pressures according to the size and density of the weed populations and crop cover.

It is preferable to use the spill dose if conditions are likely to be very warm, sunny or humid, if foliage is tender or if a sensitive variety is to be treated (see Section 4.2). Only single applications are approved for use in peas. Where weeds classed as moderately susceptible form an important part of the weed population, the spill dose will only give acceptable control if the weeds are cotyledon only. If true leaves are present, a single application of 3 l/hectare should be made.

The addition of Crop Spray IIE (Aq) No A0537) is recommended only in dwarf green beans and potatoes to improve control of fat hen, particularly when dry conditions are prevalent. Enhanced control of other weeds listed as susceptible may also be achieved.

1.2. Sequences/tank mixes

Sequence with other spray chemicals.

Do not apply insecticides within 7 days of treatment with BENTA 480 SL.

Do not apply BENTA 480 SL BEFORE a post-emergence grass herbicide: leave an interval of at least 7 days between treatments.

Do not apply BENTA 480 SL AFTER a post-emergence grass herbicide: leave an interval of 14 days

and carry out a leaf wax test where relevant.

Other than the permitted mixtures in the relevant crops, do not tank mix BENTA 480 SL with any other products.

1.3. Weather conditions

Do not apply BENTA 480 SL or any of the recommended mixtures to any crop that may have been subjected to stress conditions, such as herbicide or disease injury, excessive acidity/alkalinity, trace element deficiency, drought, water logging, widely fluctuating temperatures, or physical damage to the foliage as caused by abnormal wind, rain, hail or frost.

Do not spray under HOT SUNNY CONDITIONS when temperatures are at or above 21°C, particularly during the midday period. When the above conditions occur, spraying should be delayed until the evening. This is particularly important when there has been a change to hot sunny weather following a cool cloudy period.

Do not spray if rain or frost is expected, nor if the foliage is wet. A minimum period of 6 hours free from rain is required after application.

Do not apply BENTA 480 SL during periods of drought or unseasonably cold weather as unsatisfactory weed control may result.

1.4. Crops

Check varietal tolerance of varieties before using.

A satisfactory leaf wax test using crystal violet marker dye, must be carried out before applying BENTA 480 SL or the recommended mixtures to peas.

DO NOT treat forage pea varieties or mange-tout.

Do not use on first early or seed crop potatoes.

Restrictions relating to certain varieties of potatoes should be strictly observed.

Check also all specific restrictions and warnings relevant to potatoes.

CONSULT PROCESSORS BEFORE USE.

1.5. Application

Do not overlap spray swaths.

Avoid spray drift onto neighbouring crops, particularly lettuce and sugar beet.

The recommended water volume is 100 - 450 litres/hectare. The lowest volume of 100 litres/hectare can only be used when weeds are no larger than cotyledon stage, weed density is low to moderate and crop shielding is negligible.

WASH EQUIPMENT thoroughly immediately after use. Fill the tank with clean water and leave overnight.

Spray out before storage or using other products. Traces of the product may cause damage to susceptible crops sprayed later.

2. WEEDS CONTROLLED

2.1. Susceptibility ratings

SUSCEPTIBILITY OF WEEDS TO BENTA 480 SL ALONE OR IN MIXTURES

Weed Name	BENTA 480 SL (Alone)	BENTA 480 SL + Tropolox (MAPP 14450 and MAPP 18309)
Black bindweed	MS	S
Black grass	R	R
Chorlock	S	S
Chickweed, Common	S	S
Cleavers	S	S
Crane's bill	S	S
Dead nettle, Henbit	MS	MS
Dead nettle, Red	MS	MS
Fat hen	MS*	S
Fool's Parsley	S	S

Weed Name	BENTA 480 SL (Alone)	BENTA 480 SL + Tropatox (MAPP 14450 and MAPP 18309)
Forget me not, Field	S	S
Fumitory, Common	MS	S
Goosefoot, Fig leaved	S	S
Groundsel	MS	S
Hemp nettle, Common	MR	MS
Knotgrass	MR	MS
Marigold, Corn	S	S
Mayweed spp.	S	S
Meadow grass, Annual	R	R
Mustard, Black	S	S
Mustard, White	S	S
Nettle, Small	S	S
Nightshade, Black	S	S
Oilseed Rape, Volunteer	S	S
Orache, Common	MS	S
Pansy, Field	R	MS
Parsley piert	-	-
Penny cress, Field	S	S
Persicaria, Pale	S	S
Pimpernel, Scarlet	S	S
Poppy, Common	MS	MS
Radish, Wild	S	=
Redshank	S	S
Shepherd's purse	S	S
Sow thistle, Smooth	MS	MS
Speedwell, Common Field	MS	MS
Speedwell, other species	MR	MR
Spurrey, Corn	S	S
Thistles, Creeping (aerial portion)	SP	SP

S Susceptible: controlled from cotyledon up to 6 leaf stage or 5 cm high or across by 3 l/hectare, from cotyledon up to 2 leaves by the spill dose programme.

SP Top growth suppressed if appreciable foliage is present. Seedlings (cotyledon - 2 true leaves) will also be controlled.

MS Moderately Susceptible: controlled from cotyledon up to 2 leaf stage but only checked up to 6 leaf stage or 5 cm high or across by 3 l/hectare; controlled at cotyledon only by the spill dose programme.

MR Checked up to 2 leaves by 3l/hectare.
R Resistant: no useful effect.

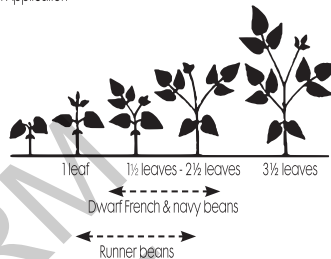
¹ BENTA 480 SL + Tropatox (MAPP 14450) tank mix recommended for use in peas only. For definition of formulations and rates, see Section 3.3.

² For improved control of fat hen in dwarf beans and in potatoes only see Section 1 and 4.2 for the use of BENTA 480 SL with adjuvants.

3. Crops

3.1. Dwarf French and Runner Beans

Time of Application



Apply BENTA 480 SL in runner beans when the crop has between one and two trifoliate leaves and in dwarf French beans as soon as the crop has two trifoliate leaves.

Crop selectivity is partly dependent on adequate leaf wax formation. When conditions which reduce leaf wax occur the application should be delayed by at least 5 to 7 days to allow recovery. BENTA 480 SL may cause transient scorch, which can be prolonged with applications later than the three trifoliate leaf stage.

Method of Application

BENTA 480 SL can be applied either by a conventional single dose or preferably by a spill dose treatment.

Varietal Tolerances

The following varieties can be safely treated:

Dwarf French Beans

Catch + Fleworo	Magnum +	Safari
Kinggreen	Nerina	Sigma
Laguna	Nomad #	Tasman
Lasso	Paulista #	Ursus
		Yukon

Runner Beans

Achievement
Emergo
Enorma

+

#

These varieties are recommended on the basis of limited (2 years) data.

The use of BENTA 480 SL + oil on these varieties is recommended on the basis of limited (2 years) data.

For the approval status and tolerance of any variety not mentioned above, consult the Processors and Growers Research Organisation.

Control of Fat Hen in Dwarf Beans

See Section 1 BENTA 480 SL use with Crop Spray 11E (ADJ No A0537).

3.2. Spring and Winter Field Beans and Broad Beans

BENTA 480 SL can be used alone or following a pre emergence herbicide providing the crop is not adversely affected.

Crop selectivity is partly dependent on adequate leaf wax formation. Frost, wet conditions, physical damage, disease or previous sprays can all reduce leaf wax and when this occurs application should be delayed by at least 5 to 7 days to await recovery.

Methods of Application:

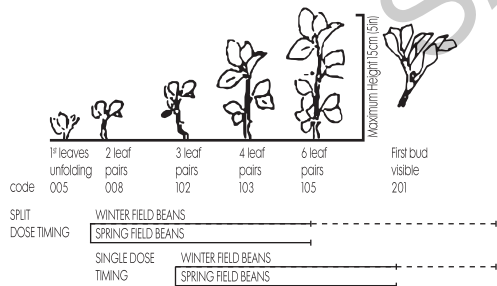
BENTA 480 SL can be applied either by a conventional single dose or by a split dose treatment. The correct crop and weed growth stages are given in the following table. See also Section 4.2 Application. The single dose is usually the preferred treatment for the winter bean crop due to overwintered weeds being more advanced. The split dose is the preferred method in spring field beans provided that the weed and crop stage are suitable.

Rates and Timing Field and Broad Beans

Crop	Application method	Rate l/hectare	Crop stage (see diagram)	Weed stage
Spring Beans and Broad Beans (a)	Split dose: (a)	1.5 l/ha followed by 1.5 l/ha OR 2 l/ha followed by 1.0 l/ha	2 to 6 leaf pairs, max. height 15 cm Optimum crop stage is 5 to 10 cm	cotyledon to 2 leaves only, (optimum cotyledon)
	Single (b) dose:	3 l/ha	3 to 6 leaf pairs, max. height 15 cm Broad Beans: 3 to 4 leaf pairs only. Optimum stage for both crops - as for split dose.	cotyledon to 6 leaves, (optimum 2 leaf)
Winter Beans (applied in the spring)	Split dose:	as spring beans	2 leaf pairs up to and including 7 leaf pair stage Optimum crop stage is 5 to 15 cm	cotyledon to 2 leaves only, (optimum cotyledon)
	Single dose:	as spring beans	3 leaf pairs up to and including 7 leaf pair stage Optimum stage as for split dose	cotyledon to 6 leaves, (optimum 2 leaf)

Important notes:

(a) If conditions are conducive to increased herbicide activity, and crop scorch, e.g. warm sunny conditions, tender foliage or a more sensitive variety, then the 1.5/1.5 l/hectare split should be used. (b) Broad beans are more sensitive than field beans. The split dose treatment is always preferable to the single dose in this crop.



Varietal tolerances. The following varieties can be treated:

Spring Field Beans

Quattro + Victor
Maris Bead Tich

Varieties in bold text may exhibit more leaf scorch than others, but are not highly sensitive. + These varieties are recommended on the basis of limited (2 years) data.

For the approval status and tolerance of any variety not mentioned above, consult the Processors and Growers Research Organisation.

Winter Field Beans: All varieties tested so far have shown good tolerance.

Broad Beans

Danko Listra Medes
Talia

Varieties in **bold** have shown more sensitivity to BENTA 480 SL. Use only the split dose treatments on these varieties.

For the approval status and tolerance of any variety not mentioned above, consult the Processors and Growers Research Organisation.

Processors must be consulted before use in broad beans.

Crop Effects Field and Broad Beans

Slight crop scorch can occur after spraying. This is seen as a blackening of leaf margins, particularly on older leaves all subsequent new leaves being unaffected. A temporary vigour check may also occur under some conditions. These effects generally have no influence on yield. They can, however, be more pronounced when applications are made beyond the optimum growth stage, particularly when the single dose is used and/or adverse weather conditions prevail.

Warnings

Avoid overlapping spray bouts and do not add Crop Spray IIE (ADJ No A0537) to BENTA 480 SL in field and broad bean crops.

Do not apply on crops earlier than the 2 leaf pair stage, or crops more than 15 cm tall (except winter beans) or if flower buds are visible.

3.3. Peas

BENTA 480 SL may be used alone or in mixtures with Tropatox (MAPP 14450 or MAPP 18309) or other products containing MCPB* (see formulations and rates defined below). The choice of treatment depends on the weed spectrum to be controlled. (see weed susceptibilities listed in Section 2.1.)

BENTA 480 SL, or the above mixtures may be used following pre emergence broad leaf herbicides provided that the crop is undamaged and showing no adverse symptoms of herbicide application. Avoid application to crops which are under stress from physical damage or disease, or other factors.

A satisfactory leaf wax test using crystal violet marker dye must be performed before applying BENTA 480 SL or BENTA 480 SL mixtures, particularly with early drillings which tend to have less leaf wax.

Slight scorch of the leaf margins and/or hormonal wilting may occur shortly after spraying but the crop will soon recover; yield and maturity will not be adversely affected.

Time of Application

Apply BENTA 480 SL or a tank mix of BENTA 480 SL + Tropatox (MAPP 14450 or MAPP 18309) from when the peas have three nodes (3 fully expanded leaves) until before the flower buds can be found enclosed in the terminal shoot. The optimum timing is when the majority of weeds have germinated, but are still at the seedling stage.

Rate of Application (See also Section 1)

- (i) BENTA 480 SL alone apply 3 l/ha
- (ii) BENTA 480 SL + Tropatox (MAPP 14450 or MAPP 18309) tank mix apply 3 l/ha
- BENTA 480 SL + 3.75 l/ha Tropatox (MAPP 14450 or MAPP 18309).

NOTE: Only single applications are approved for use in peas.

*Approved formulations containing 400 g/MCPB salt such as Tropatox (MAPP 14450 or MAPP 18309).

Varietal Tolerances

The following varieties can be safely treated, either with BENTA 480 SL alone, or the above mixtures.

Green Peas (Vining Peas)

Ambassador

*Avola (Spring)

Balmoral +

Barle

Bikini

Cabree +

Jaguar +

Markado

Misty

Samish +

Snake +

*Span

Tistar

Waverex

Winner

Zamira +

Varieties in **bold** are slightly sensitive. Slight scorch may result from treatment with BENTA 480 SL + Tropolox.

+ These varieties are recommended on the basis of limited (2 years) data.

* Particular care should be taken to ensure treating these early maturing varieties at the correct growth stage, because they flower at an earlier node than later maturing varieties. They should not be treated after the fifth expanded leaf stage.

For the approval status and tolerance of any variety not mentioned above, consult the Processors and Growers Research Organisation.

Combining Peas

Burling

Jackpot +

Eagle +

Nilouche +

Flare +

+ These varieties are recommended on the basis of limited (2 years) data.

DO NOT treat the varieties Carouby de Mousanne, Conquest, Danielle, Dinos, Filay, Fonado, Printina, Sherbourne, Turon, Santa or Vedette.

DO NOT treat forage pea varieties or mange-tout.

For the approval status and tolerance of any variety not mentioned above, consult the Processors and Growers Research Organisation.

3.4. Linseed

Since linseed offers poor weed competition, weed control is important, especially in the early growth stages.

BENTA 480 SL may be used alone or following pre-emergence herbicides, provided that the crop is showing no adverse symptoms.

Time of Application

Apply when the crop is between 2½ to 30 cm tall, but before the flower buds are visible.

The optimum timing is when the majority of weeds have germinated and are still in the seedling stage. As a guide, this is usually when the crop is between 7½ to 20 cm tall.

Methods of Application

BENTA 480 SL can be applied either by a conventional single dose or by a split dose treatment.

3.5. Ornamental plant production (Narciss)

A weed control programme of a suitable pre-emergence herbicide followed by BENTA 480 SL is recommended.

Time of Application

Apply BENTA 480 SL at or after flowering but not during flower bud formation. If required, BENTA 480 SL may be applied at any time after crop emergence except during flower bud formation. For optimum control weeds should be at the cotyledon to seedling stage.

Methods of Application

BENTA 480 SL can be applied either by a conventional single dose or by a split dose treatment.

Varietal Tolerances

The following varieties have been successfully treated:

Buxton

Carlton

Fortune

Golden Harvest

Loriani

Scarlet Elegance

Snowball

Selectivity has been satisfactory over many varieties. However, because there is such a large range, with an unlisted variety, growers are advised to check a small area in the first instance.

3.6. Potatoes

BENTA 480 SL is a post emergence treatment for use in maincrop and second early potatoes. It may be used alone or following a pre-emergence herbicide in a programme of weed control provided the crop is undamaged and showing no adverse symptoms of herbicide application. BENTA 480 SL used in sequence with a pre-emergence application of metribuzin gives improved weed control from the combination of residual and contact activity.

DO NOT apply following a post-emergence application of approved formulations of metribuzin (e.g. Sencorex® Flow MAPP 16167 and MAPP 18895).

Some leaf yellowing or slight scorch may occur under certain conditions (see 'Varietal Tolerances' and 'Factors Affecting Crop Tolerance'). These effects are transient, only being present on leaves exposed to the spray. All subsequent growth is unaffected and yields are not adversely affected, provided that applications are within the following guidelines.

Do not irrigate for at least 24 hours following application. In dry conditions irrigation prior to BENTA 480 SL application can be beneficial to ensure that weeds are actively growing. However, foliage must be dry before application.

Avoid overlapping spray bouts.

3.6.1 Potatoes- BENTA 480 SL alone

Time of Application

Apply BENTA 480 SL when the majority of weeds have emerged and are at the cotyledon to seedling stage, but before most of the crop has reached a height of 15 cm.

Application when the crop is taller than 15 cm is not recommended because foliage scorch can be increased leading to a possible check to the crop vigour and yields. Weeds can also be shielded from the spray by crop foliage with later applications.

Methods of Application

BENTA 480 SL can be applied either by a conventional single dose or preferably by a split dose treatment. See Section 4.2, Application.

Control of Fat Hen in Potatoes

See Section 4.2, BENTA 480 SL use with adjuvants.

3.6.2. Potatoes- BENTA 480 SL/Sencorex Flow sequences

Apply 0.69 kg/ha metribuzin (e.g. Sencorex Flow MAPP 16167 and MAPP 18895) pre-emergence of the potatoes as recommended on the metribuzin label. On soils with high organic matter content, better activity can be achieved by pre- or post-planting incorporation or by application pre-final rigging. Follow this with an application of 1.5 l/ha BENTA 480 SL + 1.5 l/ha Crop Spray 11E (ADJ No A0537) post-crop emergence when the weeds are at cotyledon to 2 leaf stage, but before the potato shoots exceed 15 cm in height*. Check varietal restrictions for BENTA 480 SL and metribuzin before embarking on this programme.

3.6.3. Potatoes- Varietal Tolerances

The following maincrop and second early varieties can be treated either with BENTA 480 SL alone or, if required, with the addition of Crop Spray 11E (ADJ No A0537).

Ailsa *#

Ambo #

Anno *#

Atlantic *#

Ausonia

Estima *#

Hermes *#

King Edward *

Mariona +

Maris Piper

Premiere *#

Record

Romano

Rooster *#

Saluma 0 #

Balmoral #*	Maris Peer +	Saxon #
Brodick #	Nadine	Shula #
Cara	Navan #	Symfonia **
Carlingford + #	Obelix #	Vekaro
Castella +	Pentland Crown	Valor #
Cultra #	Pentland Dell	Vanessa
Desiree *	Pentland Squire	Wijja +
Erntestolz #	Picasso * #	

+ second early varieties

0 Do not use the Sencorex Flow (MAPP 16167 and MAPP 18895) /BENTA 480 SL sequence on this variety.
* These varieties have shown more foliage scorch than others. Particular attention should be paid to the crop stage and factors affecting crop tolerance. Do not use the single dose treatment with permitted adjuvants on these varieties.

These varieties are recommended on the basis of limited (2 years) data.

DO NOT treat the following varieties: Bintje, Fianna, Lady Rosetta, Morag, Morene, Ride Pipo, Russel Burbank, Sante, Shepody, Stenstar and Stroma.
DO NOT treat seed crops or first early varieties.

Factors Affecting Crop Tolerance

BENTA 480 SL should not be applied to potatoes under hot, sunny conditions when temperatures are at or above 21°C, particularly during the mid day period. When these conditions are encountered, spraying should be delayed until evening. It should be noted that in general, crop foliage is more sensitive when there is a sudden change to hot, sunny weather following a cool, cloudy period. This sensitivity diminishes after approximately three days.

Crop tolerance will also be reduced if the crop is under stress, e.g. from such factors as physical damage (as from high wind), heavy rain or hail, virus diseases, blackleg, nematodes, Rhizoctonia, excessive soil alkalinity or acidity, or frost either shortly before or after treatment. Wet foliage is prone to scorch by BENTA 480 SL.

4. Mixing and Spraying

4.1. Mixing

Half fill the spray tank with clean water and start the agitation. Pour in the required amount of BENTA 480 SL. Add the remainder of the water and continue agitation until spraying is completed.

When tank mixes are to be used, each product should be added separately to the spray tank.

4.2. Application

All applications should be made as a FINE spray, as defined by BCPC, unless the highest water volumes are used when FINE or MEDIUM sprays are permissible. It is essential to achieve full cover of all weed surface areas, especially the growing point. Therefore ADJUST SPRAY VOLUMES AND PRESSURES ACCORDING TO THE SIZE AND DENSITY OF THE WEED POPULATIONS AND CROP COVER.

BENTA 480 SL can be applied as a single dose in all recommended crops or as a split dose in dwarf green, runner and field beans, inseed, potatoes and narcissi. The split dose will control susceptible weeds from cotyledon up to 2 true leaves while the single dose is effective on weeds up to 4 - 6 true leaf stage. The split dose method has generally given better weed control and enhanced crop safety over the conventional single dose, but if weeds are larger than 2 true leaves, it is necessary to use the single dose method.

Timing of Split Dose

The optimum timing for the first application is when the first flush of weeds are at the cotyledon stage. The second follow up dose should be applied within 7 to 10 days of the first dose, depending on the control achieved by the initial dose or the appearance of the second weed flush. See individual sections below for crop growth stage limitations.

A maximum of two applications may be made: 1.5 l/hectare followed by 1.5 l/hectare or 2 l/hectare followed by 1.0 l/hectare.

The 1.5 l/1.5 l/hectare split is preferable if conditions are likely to be very warm, sunny or humid, if foliage is tender or if a sensitive variety is to be treated.

The recommended water volume is 100-220 litres/hectare. The lowest volume of 100 litres/hectare can only be used when weeds are no larger than cotyledon stage, weed density is low to moderate and crop shielding is negligible.

Single Dose and Mixtures

Where BENTA 480 SL is recommended as a single application in this text, it should be applied at 3 l/hectare.

When applied alone or in mixture with other products, the recommended water volume is 220-450 litres/hectare.

The lowest volume of 220 litres/hectare should only be used when all the following conditions apply:

- : weeds at cotyledon to 2 leaves only
- : weed density is low to moderate
- : crop shielding is negligible

Flat fan or high pressure hollow cone nozzles are suitable under these conditions.

For other situations, 380-450 litres/hectare is recommended, preferably applied through flat fan nozzles only, operating at an optimum pressure of approximately 3 - 3.5 bar, in order to produce a fine penetrating spray.

In crops where the addition of an adjuvant is recommended, add 2 litres/hectare of Crop Spray 11E (ADJ) No A05371 to the recommended rate of BENTA 480 SL when spray volumes of 220 - 450 litres/hectare are used.

Where a split dose application is recommended within the water volume range of 100-170 litres/hectare then the rate of adjuvant is reduced to 1 - 1.5 litres/hectare respectively.

5. Compatibility

Mixes

Provided that all product recommendations are followed, BENTA 480 SL is fully compatible in two way mix with Crop Spray 11E (ADJ) No A05371 for use as directed in dwarf beans and potatoes, and Tropotox® (MAPP 14450 or MAPP 18309) or MCPB, for use as directed in peas. See relevant sections for definition of formulations covered.

Apart from the above permitted products, used as directed, no other products should be tank mixed with BENTA 480 SL or severe crop damage can result.

All tank mixes should be used immediately after mixing.

Sequences

Do not apply insecticides within 7 days of treatment with BENTA 480 SL.

BENTA 480 SL BEFORE a post emergence grass herbicide. Leave an interval of at least 7 days between treatments.

BENTA 480 SL AFTER a post emergence grass herbicide: leave an interval of 14 days and carry out a leaf wax test where relevant.

COMPANY ADVISORY INFORMATION

This section is not part of the Product Label under the Plant Protection Products Regulations 2011 and provides additional advice on the product.

CONDITIONS OF SUPPLY

All goods supplied by us are of high grade and we believe them to be suitable but, as we cannot exercise control over their storage, handling, mixing or use or the weather conditions before, during and after application which may affect the performance of the goods, all conditions and warranties, statutory or otherwise, as to the quality or fitness for any purpose of our goods are excluded and no responsibility will be accepted by us or re-sellers for any failure in performance, damage or injury whatsoever arising from their storage, handling, application or use. These conditions cannot be varied by our staff or agents whether or not they supervise or assist in the use of such goods.

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Trade name: Benta 480 SL

1.2. Relevant identified uses of the substance or mixture and uses advised against mixture

Hericide

1.3. Details of the supplier of the safety data sheet

Nufarm UK Limited
Wyke Lane
Wyke
Bradford
West Yorkshire BD12 9EJ
United Kingdom
Telephone: +44 (0)1274 691234 Telefax: +44 (0)1274 691176
E-mail address: infouk@uk.nufarm.com

1.4. Emergency telephone number:

Emergency number: +44 (0)1274 696603

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

EG_1272/08: AcuteTox.4 H302 - Harmful if swallowed.
SkinSens.1 H317 - May cause an allergic skin reaction.
AquaticChronic3 H412 - Harmful to aquatic life with long lasting effects.

2.2. Label elements

REGULATION (EC) No 1272/2008

Pictogram:



GHS07

Signal word: Warning

H302	-	Harmful if swallowed.
H317	-	May cause an allergic skin reaction.
H412	-	Harmful to aquatic life with long lasting effects.
EUH401	-	To avoid risks to human health and the environment, comply with the instructions for use.
P261	-	Avoid breathing vapours or spray.
P270	-	Do not eat, drink or smoke when using this product.
P280	-	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P302+P352	-	IF ON SKIN: Wash with plenty of soap and water.
P332+P313	-	If skin irritation occurs: Get medical advice/ attention.
P363	-	Wash contaminated clothing before reuse.
P501	-	Dispose of contents/ container to a licensed hazardous-waste disposal contractor or collection site except for empty clean containers which can be disposed of as non hazardous waste.

2.3. Other hazards

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Aqueous solution
contains 480g/L Bentazone

3.1. Substances

Not applicable

3.2. Mixtures

Components:

Bentazone		
CAS-No.:	25057-89-0	
EINECS-No. / ELINCS No.:	246-585-8	
REACH No.:		
Concentration:	40.5% (w/w)	
Classification:		
EG_1272/08:	AcuteTox.4	H302 - Harmful if swallowed.
	Eyelrrit.2	H319 - Causes serious eye irritation.
	SkinSens.1	H317 - May cause an allergic skin reaction.
	AquaticChronic3	H412 - Harmful to aquatic life with long lasting effects.

4. FIRST AID MEASURES

4.1. Description of first aid measures

Eye contact:

Rinse immediately with plenty of water for at least 15 minutes. Seek medical advice.

Skin contact:

Wash off with soap and plenty of water. If skin irritation persists, call a physician. Remove and wash contaminated clothing before re-use.

Inhalation:

Move affected person(s) into fresh air. When symptoms persist or in all cases of doubt seek medical advice. If breathing is irregular or stopped, administer artificial respiration.

Ingestion:

Rinse mouth. Drink plenty of water. Consult a physician. Never give anything by mouth to an unconscious person.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms: No information available.

4.3. Indication of any immediate medical attention and special treatment needed

Treatment: Treat symptomatically.

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media: Water mist, Foam, Carbon dioxide (CO₂), Dry chemical.

5.2. Special hazards arising from the substance or mixture

Specific hazards during firefighting: Hazardous decomposition products formed under fire conditions. In the event of fire (NO_x, CO_x, SO₂) may be formed.

5.3. Advice for firefighters

Special protective equipment for firefighters: Use personal protective equipment. Wear self contained breathing apparatus for fire fighting if necessary.

Further information: Standard procedure for chemical fires. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Cool containers/ tanks with water spray.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Wear personal protective equipment. (see Chapter 8)

6.2. Environmental precautions

Do not contaminate surface water. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

6.3. Methods and materials for containment and cleaning up

Methods for cleaning up: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Shovel or sweep up. Pick up and transfer to properly labelled containers. Clean contaminated surface thoroughly.

Additional advice: Never return spills in original containers for re-use.

6.4. Reference to other sections

see Chapter 13.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Safe handling advice: Avoid contact with skin and eyes. When using do not eat, drink or smoke. Protect against light.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers: Keep containers tightly closed in a cool, well-ventilated place. Store in original container. Do not store at temperatures above 40°C.

Advice on common storage: Keep away from food, drink and animal feeding stuffs.

Storage stability

Storage temperature: > -5 °C

7.3. Specific end uses

none

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Components with workplace control parameters (EH40/2005 Workplace exposure limits)

Components	CAS-No.	National occupational exposure limits	Note
benzotriazole	25057-89-0		no classification available

8.2. Exposure controls

Personal protective equipment

Respiratory protection:

Provide adequate ventilation. Suitable respiratory equipment: Respirator with a particle filter (EN 143) P2 filter P3 filter.

Hand protection:

Chemical resistant gloves made of butyl rubber or nitrile rubber category III according to EN 374. Do not wear leather gloves, Do not wear cotton gloves.

Eye protection:

Safety glasses with side-shields conforming to EN166, or, Face shield.

Skin and body protection:

Wear suitable protective equipment, Long sleeved clothing. Remove and wash contaminated clothing before re-use.

Hygiene measures:

Wash hands and face before breaks and immediately after handling the product. Remove contaminated clothing and protective equipment before entering eating areas. Wash contaminated clothing before re-use.

Protective measures:

When using, do not eat, drink or smoke.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance

Physical state:

Form:

Colour:

Odour:

Liquid
Soluble concentrate
dark yellow
faint
no data available
100°C

Flash point:

100 °C

The product is not flammable.

Explosivity:

Not explosive

Upper explosion limit:

no data available

Lower explosion limit:

no data available

Vapour pressure:

no data available

Water solubility:

soluble

pH:

7.2

Partition coefficient: n-octanol/water:

log POW = <3

Viscosity, dynamic:

Benztotriazole

8,501 mPa.s

at 40 °C

Surface tension:

46.9 mN/m

9.2. Other information

none

10. STABILITY AND REACTIVITY

10.1. Reactivity

no data available.

10.2. Chemical stability

No decomposition if stored and applied as directed.

10.3. Possibility of hazardous reactions

Stable under recommended storage conditions.

10.4. Conditions to avoid

Extremes of temperature and direct sunlight.

10.5. Incompatible materials to avoid

Oxidizing agents, Strong acids.

10.6. Hazardous decomposition products

nitrogen oxides (NOx), Carbon oxides, Sulphur oxides.

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute oral toxicity:

LD50 Oral rat

Dose: 1,400 - 1,800 mg/kg.

Acute dermal toxicity:

LD50 Dermal rat

Dose: > 5,000 mg/kg.

Acute inhalation toxicity:

LC50 rat

Exposure time: 4 h

Dose: 5.1 mg/l

Result: No skin irritation

rabbit

Result: No eye irritation

Guinea-pig

Result: May cause sensitization by skin contact.

not mutagenic

not carcinogenic

No reproductive effects

Skin irritation:

Eye irritation:

Sensitisation:

Mutagenicity:

Carcinogenicity:

Reproductive toxicity:

12. ECOLOGICAL INFORMATION

12.1. Toxicity

Toxicity to fish

LC50 Oncorhynchus mykiss (Rainbow trout)

Dose: > 100 mg/l

Testing period: 96 h

Test substance: Benzotriazole

LC50 Daphnia magna (Water flea)

Dose: 64 mg/l

Testing period: 48 h

Toxicity to daphnia

Toxicity to algae

Test substance: Bentazone
EC50 Anabaena flos-aquae (cyanobacterium)
Dose: 101 mg/l
Exposure time: 120 h
Test substance: Bentazone

EC50 Lemna gibba (Duckweed)
Dose: 5.4 mg/l
Exposure time: 14 d
Test substance: Bentazone

12.2. Persistence and degradability

Biodegradability: no data available
Additional advice: no data available

12.3. Potential bioaccumulation

Bioaccumulation: no data available

12.4. Mobility in soil

no data available

12.5. Results of PBT and vPvB assessment

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

12.6. Other adverse effects

none

13. DISPOSAL CONSIDERATIONS

According to European Directive 2000/532/EC as amended:
Waste Code: 02 01 08 (agrochemical waste containing dangerous substances)

13.1. Waste treatment methods

Product: Do not empty into drains. Dispose of product and packaging in accordance with the "Code of practice for using plant protection products". A DEFRA publication.
Contaminated packaging: Dispose empty and triple rinsed container within a local disposing system. Do not re-use empty containers.

14. TRANSPORT INFORMATION

14.1. UN number

14.2. Proper shipping name

not applicable.

14.3. Transport hazard class(es)

ADR/RID:
Not a dangerous substance as defined in the above regulations.
IMDG:
Not a dangerous substance as defined in the above regulations.
IATA-DGR:
Not a dangerous substance as defined in the above regulations.

14.4. Packaging group

not applicable.

14.5. Environmental hazards

not applicable.

14.6. Special precautions for user

none

15. REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Other regulations: The product is classified and labelled in accordance with EC directives or respective national laws.

15.2. Chemical Safety Assessment

none

16. OTHER INFORMATION

Print Date: 2015/12/01

The date format YYYY/MM/DD is used according to ISO 8601. (Alterations are indicated in the left hand margin by: ||)

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
The information contained herein is based on the present state of our knowledge and does therefore not guarantee certain properties.

BENTA 480 SL®



This product is a soluble concentrate containing 480 g/litre (40.3% w/w) bentazone as the sodium salt. BENTA 480 SL is a herbicide for post emergence broad leaved weed control in spring and winter field beans, broad bean, dwarf french bean, runner bean, combining pea, vining pea, linseed, ornamental plant production and potatoes.

IMPORTANT INFORMATION FOR USE ONLY AS AN AGRICULTURAL/HORTICULTURAL HERBICIDE

Crops	Maximum individual dose (litres product/hectare)	Maximum number of treatments (per crop)	Latest time of application
Field bean (winter)	3	One or Two as a split dose (see 'Other specific restrictions')	Up to and including 7 leaf pair stage
Dwarf french bean	3	One or Two as a split dose (see 'Other specific restrictions')	Before flower buds visible
Runner bean	3	One or Two as a split dose (see 'Other specific restrictions')	Before flower buds visible
Linseed	3	One or Two as a split dose (see 'Other specific restrictions')	Before flower buds visible
Field bean (spring)	3	One or Two as a split dose (see 'Other specific restrictions')	Before the crop exceeds 15 cm in height and before the 7 leaf pair stage
Broad bean	3	One or Two as a split dose (see 'Other specific restrictions')	Single dose – before the 5 leaf pair stage. Split dose – before the crop exceeds 15 cm in height and before the 7 leaf pair stage.
Vining pea, combining pea	3	One	Before flower buds can be found enclosed in the terminal shoot
Potato	3	One or Two as a split dose (see 'Other specific restrictions')	Before shoots exceed 15 cm in height
Ornamental plant production (narcissi)	3	One or Two as a split dose (see 'Other specific restrictions')	

Other specific restrictions:

A maximum of 3 litres product per hectare per crop must not be exceeded for split doses. This product must not be applied to ornamental plant production (narcissi) during flower bud formation. Do not re-use container for any purpose.

READ THE LABEL BEFORE USE. USING THIS PRODUCT IN A MANNER THAT IS INCONSISTENT WITH THE LABEL MAY BE AN OFFENCE. FOLLOW THE CODE OF PRACTICE FOR USING PLANT PROTECTION PRODUCTS.



WARNING

Harmful if swallowed
May cause an allergic skin reaction
Harmful to aquatic life with long lasting effects

Avoid breathing vapours / spray
Wear protective gloves / protective clothing
If skin irritation or rash occurs: get medical advice / attention
Wash contaminated clothing before reuse
Dispose of contents / container to a licensed hazardous waste disposal contractor or collection site except for empty clean containers which can be disposed of as non hazardous waste.

To avoid risks to human health and the environment, comply with the instructions for use.



This label is compliant with the CPA Voluntary Initiative Guidance.

Authorisation Holder:

Sharda Europe b.v.b.a - Jozef Mertensstraat 142, 1702 Dilbeek - Belgium
Tel : +32-2-4664444

Marketing Company:

Wyke Lane - Wyke - Bradford - West Yorkshire - BD12 9EJ - United Kingdom
Technical Helpline telephone number 01274 694714
24-hour emergency telephone number 01274 696603

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KEEP DRY

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Grow a better tomorrow