



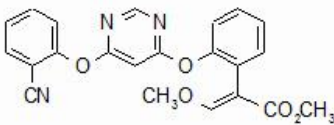
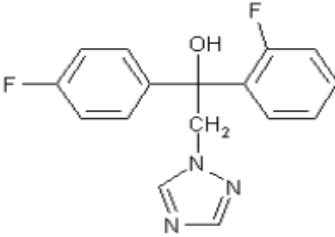
## Material Safety Data Sheet (MSDS)

### Carnival SC

#### IDENTIFICATION OF THE SUPPLIER:

**AGRO CHEMICALS INDUSTRIES LTD**  
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#### PRODUCT IDENTIFICATION:

<b>Common name :</b>	Azoxystrobin	Flutriafol
<b>Trade name</b>	Carnival SC	
<b>Uses category</b>	Fungicide	
<b>Type of formulation</b>	Suspension concentrate	
<b>Chemical name</b>	Methyl (E)-2-{2 [6-(2-cyanophenoxy)pyrimidin-4-yl]oxy]phenyl}-3-methoxyacrylate.	(RS)-2,4'-Difluoro- $\alpha$ -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol
<b>Chemical formula</b>		
<b>Molecular weight</b>	403.4 g/mol	301.3

#### PRODUCT COMPOSITION:

<i>Active ingredient</i>	<i>%w/v</i>	<i>CAS#</i>
Azoxystrobin	29.6	[131860-33-8]
Flutriafol	21.8	[76674-21-0]





**Inert Ingredients: Up to 100%**

## HAZARDS IDENTIFICATION:

CLP classification of the product according to Reg. 1272/2008 as amended  
Hazards to the aquatic environment, acute: Category 1 (H400) chronic: Category 1 (H410)

DPD classification of the product according to Dir. 1999/45/EC as amended  
N; R50/53

WHO classification .....Guidelines to Classification 2009  
Class U (unlikely to present acute hazard in normal use)

Health hazards .....The product may cause mild irritation to skin and eyes.

Environmental hazards .....The product is very toxic to aquatic organisms.

### Label elements

According to EU Reg. 1272/2008 as amended

Product identifier .....2448-02, Azoxystrobin 296 g/l + Flutriafol 218 g/l SC  
Hazard pictogram (GHS09) .....



Signal word ..... Warning

Hazard statement H410 ..... Very toxic to aquatic life with long lasting effects.

Supplementary hazard statements EUH208 Contains 1,2-benzisothiazol-3(2H)-one. May produce an allergic reaction.

EUH401 ..... To avoid risks to human health and the environment, comply with the instructions of use.

Precautionary statements





- P273 ..... Avoid release to the environment.  
P391 ..... Collect spillage.  
P501 ..... Dispose of contents/container as hazardous waste

*According to Dir. 1999/45/EC as amended*



Hazard symbol .....N Dangerous for the environment

R-phrase R50/53..... Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrases S60..... This material and its container must be disposed of as hazardous waste.

S61..... Avoid release to the environment. Refer to special instructions/ safety data sheets.

Other mentions..... Contains 1,2-benzisothiazol-3(2H)-one. May cause an allergic reaction.

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

## **FIRE-FIGHTING MEASURES: -**

Extinguishing media..... Dry chemical or carbon dioxide for small fires, water spray or foam for large fires. Avoid heavy hose streams.

Special hazards arising from the substance or mixture ...The essential breakdown products are volatile, toxic, irritant and inflammable compounds such as nitrogen oxides, hydrogen cyanide, hydrogen fluoride, sulphur dioxide, carbon monoxide, carbon dioxide and various fluorinated organic compounds.

Advice for firefighters..... Use water spray to keep fire-exposed containers cool. Approach fire from upwind to avoid hazardous vapours and toxic decomposition products. Fight fire from protected location or maximum possible distance. Dike area to prevent water runoff. Firemen should wear self-contained breathing apparatus and protective clothing





## FIRST-AID MEASURES:

### Description of first aid measures

**Inhalation** .....If experiencing any discomfort, immediately remove from exposure. Light cases: Keep person under surveillance. Get medical attention immediately if symptoms develop. Serious cases: Get medical attention immediately or call for an ambulance.

**Skin contact** .....Immediately flush skin with water while removing contaminated clothing and footwear. Wash with water and soap. See physician if any symptom develops.

**Eye contact** .....Immediately rinse eyes with much water or eyewash solution, occasionally opening eyelids, until no evidence of chemical remains. Remove contact lenses after a few minutes and rinse again. See physician if irritation develops.

**Ingestion** ..... Let the exposed person rinse mouth and let him/her drink several glasses of water or milk, but do not induce vomiting. If vomiting does occur, let him/her rinse mouth and drink fluids again. Never give anything by mouth to an unconscious person. Get medical attention immediately.

**Most important symptoms and effects, both acute and delayed** Mild irritation.

**Indication of any immediate medical attention and special treatment needed** immediate medical attention is required in case of ingestion.

It may be helpful to show this safety data sheet to physician.

**Note to physician**..... There is no specific antidote for exposure to this material. Gastric lavage and/or the administration of activated charcoal can be considered. After decontamination, treatment should be directed at the control of symptoms and the clinical condition.

## ACCIDENTAL RELEASE:

### Personal precautions, protective equipment and emergency procedures

It is recommended to have a predetermined plan for the handling of spills. Empty, closable vessels for the collection of spills should be available.

In case of large spill (involving 10 tons of the product or more):

1. Use personal protection equipment; see section 8
2. Call emergency telephone no.; see section 1
3. Alert authorities.

Observe all safety precautions when cleaning up spills. Use personal protection equipment. Depending on the magnitude of the spill this may mean wearing respirator, face mask or eye protection, chemical resistant clothing, gloves and rubber boots.

Stop the source of the spill immediately if safe to do so. Keep unprotected persons away from the spill area. Avoid and reduce vapour or mist formation as much as possible.





**Environmental precautions** ....Contain the spill to prevent any further contamination of surface, soil or water. Wash waters must be prevented from entering surface water drains. Uncontrolled discharge into water courses must be alerted to the appropriate regulatory body.

**Methods and materials for containment and cleaning up** it is recommended to consider possibilities to prevent damaging effects of spills, such as bunding or capping.

Surface water drains should be covered if appropriate. Minor spills on the floor or other impervious surface should be absorbed onto an absorptive material such as universal binder, hydrated lime, Fuller's earth or other absorbent clays. Collect the contaminated absorbent in suitable containers. Clean area with much water and detergent. Absorb wash liquid onto absorbent and transfer to suitable containers. The used containers should be properly closed and labelled.

Spills which soak into the ground should be dug up and transferred to suitable containers.

Spills in water should be contained as much as possible by isolation of the contaminated water. The contaminated water must be collected and removed for treatment or disposal

## PHYSICAL-CHEMICAL DATA:

Appearance..... Light brown liquid  
Odour ..... Weak, ammonia-like  
Odour threshold..... Not determined  
pH..... Not determined  
Melting point/freezing point..... Not determined  
Initial boiling point and boiling range not determined  
Flash point..... Not determined, but expected to be > 95°C  
Evaporation rate .....Not determined  
Flammability (solid/gas)..... Not applicable (liquid)  
Upper/lower flammability or explosive limits..... Not determined  
Vapour pressure..... Azoxystrobin :  $1.107 \times 10^{-10}$  Pa at 20°C  
Flutriafol :  $7.0 \times 10^{-9}$  Pa at 20°C  
Vapour density .....Not determined  
Relative density ..... Not determined  
Density: 1.16 g/ml  
Solubility(ies) .....  
Azoxystrobin : 6.7 mg/l at pH 7 in water  
low solubility in hexane, n-octanol  
moderate solubility in toluene, acetone  
high solubility in ethyl acetate, acetonitrile  
Solubility of flutriafol at 21°C in:  
acetone 114 - 133 g/l  
n-heptane < 10 g/l  
water 130 mg/l at 20°C  
Partition coefficient n-octanol/water





Azoxystrobin : log  $K_{ow}$  = 2.5 at 20°C

Flutriafol : log  $K_{ow}$  = 2.29

Autoignition temperature .....Not determined

Decomposition temperature .....Not determined

Viscosity .....Not determined

Explosive properties .....Not explosive

Oxidising properties .....Not oxidising

Miscibility .....The product is miscible with water.

## PERSONAL PROTECTION/SAFTETY:

### Control parameters

Personal exposure limits..... To our knowledge not established for the active ingredients in this product. An internal PEL of 1.5 mg/m<sup>3</sup> (8-hr TWA) is recommended by the manufacturer both for azoxystrobin and for flutriafol.

#### Propylene glycol year

AIHA (USA) WEEL 2014 10 mg/m<sup>3</sup>

MAK (Germany) 2013 Cannot be established at present

HSE (UK) WEL 2011 8-hr TWA 150 ppm (474 mg/m<sup>3</sup>), total (vapour and particulates)

However, other personal exposure limits defined by local regulations may exist and must be observed.

#### Azoxystrobin

DNEL, systemic..... 0.2 mg/kg bw/day

PNEC, aquatic..... 0.88 µg/l

#### Flutriafol

DNEL..... 0.05 mg/kg bw/day

PNEC, aquatic..... 6.2 µg/l

Exposure controls ..... When used in a closed system, personal protection equipment will not be required. The following is meant for other situations, when the use of a closed system is not possible, or when it is necessary to open the system. Consider the need to render equipment or piping systems non-hazardous before opening.

The precautions mentioned below are primarily meant for handling of the undiluted product and for preparing the spray solution, but can be recommended for spraying as well.







**Respiratory protection**

Inhalation is not usually a hazard, but breathing of finely divided mist must be avoided. In the event of an accidental discharge of the material workers must put on officially approved respiratory protection equipment with a universal filter type including particle filter.



**Protective gloves .....**

Wear chemical resistant gloves, such as barrier laminate, butyl rubber, nitrile rubber or viton. The breakthrough times of these materials for the product are unknown, but it is expected that they will give adequate protection.



**Eye protection .....**

Wear safety glasses. It is recommended to have an emergency eye wash fountain immediately available in the work area when there is a potential for eye contact.



**Other skin protection**

Wear appropriate chemical resistant clothing to prevent skin contact depending on the extent of exposure. During most normal work situations where exposure to the material cannot be avoided for a limited time span, waterproof pants and apron of chemical resistant material or coveralls of polyethylene (PE) will be sufficient. Coveralls of PE must be discarded after use if contaminated. In cases of appreciable or prolonged exposure, coveralls of barrier laminate may be required.

## STABILITY AND REACTIVITY

**Reactivity** .....To our knowledge, the product has no special reactivities.

**Chemical stability** .....The product is stable during normal handling and storage at ambient temperatures.

**Possibility of hazardous reactions** ...None known.

**Conditions to avoid** .....Heating of the product will evolve harmful and irritant vapours.

**Incompatible materials** .....None known.

## HANDLING AND STORAGE:

**Precautions for safe handling** ..... In an industrial environment it is recommended to avoid all personal contact with the product, if possible by using closed systems with remote system control. Otherwise, the material should preferably be handled by mechanical means. Adequate ventilation or local exhaust ventilation is required. The exhaust gases should be filtered or treated otherwise. For personal protection in this situation.

For its use as a pesticide, first look for precautions and personal protection measures on the officially approved label on the packaging or for other official guidance or policy in force. If these are lacking.

Keep all unprotected persons and children away from working area.

Avoid contact with eyes, skin or clothing. Avoid breathing vapour or mist.

Remove contaminated clothing immediately. Wash thoroughly after handling. Before removing gloves, wash them with water and soap. After work, take off all work clothes and footwear. Take a shower, using water and soap. Wear only clean clothes when leaving job. Wash protective clothing and protective equipment with water and soap after each use.





Do not discharge to the environment. Collect all waste material and remains from cleaning equipment, etc., and dispose of as hazardous waste.

**Conditions for safe storage, including any incompatibilities** the product is stable under normal conditions of warehouse storage. Storage temperature: 5 - 30°C. Protect from frost and extreme heat.

Store in tightly closed, labelled containers. The storage room should be constructed of incombustible material, closed, dry, ventilated and with impermeable floor, without access of unauthorised persons or children. A warning sign reading "POISON" is recommended. The room should only be used for storage of chemicals. Food, drink, feed and seed should not be present. A hand wash station should be available.

**Specific end use(s)** .....The product is a pesticide and may only be used for officially allowed applications

### ACUTE TOXICITY (IRRITATION, SENSITISATION ETC.)

**Information on toxicological effects \* = Based on available data, the classification criteria are not met.**

#### Product

Acute toxicity .....The product is not considered as harmful by ingestion, skin contact or by inhalation. \* However, since the active ingredient azoxystrobin is toxic by inhalation, this product may become hazardous when a finely divided mist is produced. The acute toxicity of the product is estimated as:

Route(s) of entry – ingestion LD<sub>50</sub>, oral, rat: > 2000 mg/kg  
- skin LD<sub>50</sub>, dermal, rat: > 4000 mg/kg  
- inhalation LC<sub>50</sub>, inhalation, rat: > 5.0 mg/l/4 h

Skin corrosion/irritation .....Not expected to be irritating to skin. \*

Serious eye damage/irritation .....May be slightly irritating to eyes. \*

Respiratory or skin sensitisation ...Not expected to be sensitising to skin. \*

Aspiration hazard .....The product does not present an aspiration pneumonia hazard. \*

Symptoms and effects, acute and delayed..... Mild irritation. Inhalation may result in difficulty breathing.

#### Azoxystrobin

Toxicokinetics, metabolism and distribution..... After oral intake, azoxystrobin is rapidly absorbed with largest concentration found in liver and kidneys. It is extensively metabolised. It is rapidly excreted, within a few days. There is no evidence of accumulation.

Acute toxicity .....Azoxystrobin is toxic by inhalation. It is not considered as harmful by skin contact or by ingestion. The acute toxicity is measured as:

Route(s) of entry

- Ingestion LD<sub>50</sub>, oral, rat: > 5000 mg/kg (method OECD 401) \*
- Skin LD<sub>50</sub>, dermal, rat: > 2000 mg/kg (method OECD 402) \*
- Inhalation LC<sub>50</sub>, inhalation, rat (male): 0.963 mg/l/4 h (method OECD 403)  
LC<sub>50</sub>, inhalation, rat (female): 0.698 mg/l/4 h

Skin corrosion/irritation.....Slightly irritating to skin (method OECD 404). \*

Serious eye damage/irritation .....Slightly irritating to eyes (method OECD 405). \*





Respiratory or skin sensitisation ...Not sensitising (method OECD 406). \*

Germ cell mutagenicity..... Results from tests on germ cells are not available. Some positive results were found in in vitro tests (method OECD 473), but not in in vivo tests (method OECD 474). \*

Carcinogenicity .....No indications of carcinogenic effects are found for azoxystrobin (methods OECD 451 and 453). \*

Reproductive toxicity .....No effects on fertility are found for azoxystrobin (3 studies). No indications of teratogenic (birth defect causing) effects of azoxystrobin are found (3 studies).\*

STOT – single exposure .....No specific effects after single exposure to azoxystrobin have been observed. \*

STOT – repeated exposure .....Target organ: liver  
LOEL: 2000 ppm (210 mg/kg bw/day) in a 90-day rat study. At this exposure level, decreased activity of ALT, AST, alkaline phosphatase and creatine kinase was found (method OECD 408).\*

### Flutriafol

Toxicokinetics, metabolism and distribution Flutriafol is rapidly absorbed after oral intake. It is widely distributed in the body, but it preferably binds to red blood cells. Metabolism is almost complete. It is rapidly excreted. There is no evidence of accumulation.

Acute toxicity .....The substance is harmful by ingestion. It is considered as less harmful by skin contact and by inhalation. The acute toxicity is measured as:

#### Route(s) of entry

- Ingestion LD<sub>50</sub>, oral, rat: 300 - 2000 mg/kg (method OECD 423)

- Skin LD<sub>50</sub>, dermal, rat: > 2000 mg/kg (method OECD 402) \*

- Inhalation LC<sub>50</sub>, inhalation, rat: > 5.2 mg/l/4 h (method OECD 403) \*

Skin corrosion/irritation .....Not irritating to skin (method OECD 404). \*

Serious eye damage/irritation .....Not irritating to eyes (method OECD 405). \*

Respiratory or skin sensitisation ... Not sensitising (method OECD 429). \*

Germ cell mutagenicity .....Dominant lethal test was negative (method OECD 478). \*

Carcinogenicity .....No carcinogenic effects have been observed in rats and mice. \*

Reproductive toxicity .....No effects on fertility are found (method OECD 416) and no teratogenic (birth defects causing) effects are found for flutriafol (method OECD 414) at maternal non-toxic doses (10 mg flutriafol/kg bw/day). \*

STOT – single exposure .....No specific effects after single exposure to flutriafol have been observed. \*

STOT – repeated exposure .....Target organ: liver

Repeated exposure to flutriafol may cause liver damage. The LOEL for this effect has been found to be approx. 150 mg flutriafol/kg bw/day in a 90-day feeding study in rats. \*





Sodium alkyl naphthalene sulphonate-formaldehyde condensate

Acute toxicity .....The substance is not considered harmful by single exposure. \*

Route(s) of entry

- Ingestion LD<sub>50</sub>, oral, rat: > 5000 mg/kg
- Skin LD<sub>50</sub>, dermal, rat: not available
- Inhalation LC<sub>50</sub>, inhalation, rat: not available

Skin corrosion/irritation .....May be mildly irritating to skin. \*

Serious eye damage/irritation .....Irritating to eyes.

STOT – single exposure .....Inhalation of dust can cause irritation of airways. It is not clear if the criteria for classification are met.

1,2-Benzisothiazol-3(2H)-one

Acute toxicity .....The substance is harmful by ingestion.

Route(s) of entry

- Ingestion LD<sub>50</sub>, oral, rat (male): 670 mg/kg  
LD<sub>50</sub>, oral, rat (female): 784 mg/kg (method OPPTS 870.1100; measured on 73% solution)
- Skin LD<sub>50</sub>, dermal, rat: > 2000 mg/kg \*(method OPPTS 870.1200; measured on 73% solution)
- Inhalation LC<sub>50</sub>, inhalation, rat: not available

Skin corrosion/irritation .....Slightly irritating to skin (method OPPTS 870.2500).

Serious eye damage/irritation .....Severely irritating to eyes (method OPPTS 870.2400).

Respiratory or skin sensitisation ...Moderate dermal sensitizer to guinea pigs (method OPPTS 870.2600). The substance appears to be significantly more sensitising to humans.

Germ cell mutagenicity .....All acceptable mutagenicity studies showed a negative mutagenic response for this chemical. \*

Carcinogenicity .....Short term tests and a consideration of the structure have shown that the substance is not likely to present a carcinogenic hazard to man. \*

Reproductive toxicity .....The reproduction study did not show evidence of increased susceptibility of offspring. Developmental effects consisted of slightly delayed ossification. \*

**ECOLOGICAL INFORMATION: -**

**Toxicity** .....The product is toxic to fish, aquatic invertebrates and green algae. It is considered as less toxic to insects, birds and soil micro- and macroorganisms. The toxicity of the active ingredients is measured as:



			Azoxystrobin	Flutriafol	
- Fish	Rainbow trout ( <i>Oncorhynchus mykiss</i> )	96-h LC <sub>50</sub>	0.47 mg/l	61 mg/l	
		28-day NOEC	0.16 mg/l	6.2 mg/l	
- Invertebrates	Daphnids ( <i>Daphnia magna</i> )	48-h EC <sub>50</sub>	0.28 mg/l	> 78 mg/l	
		21-day NOEC	0.044 mg/l	0.31 mg/l	
- Algae	Green algae ( <i>Pseudokirchneriella subcapitata</i> )	96-h IC <sub>50</sub>	0.36 mg/l	12 mg/l	
		( <i>Scenedesmus subspicatus</i> )		72-h IC <sub>50</sub>	1.9 mg/l
- Earthworms	<i>Eisenia foetida</i>	14-day LC <sub>50</sub>	283 mg/kg soil	> 100 mg/kg soil	
- Birds	Mallard duck ( <i>Anas platyrhynchos</i> )	LD <sub>50</sub>	> 1000 mg/kg	> 5000 mg/kg	
		Bobwhite quail ( <i>Colinus virginianus</i> )	LD <sub>50</sub>	> 1000 mg/kg	
			dietary LD <sub>50</sub>	> 5200 ppm	
- Insects	Bees ( <i>Apis mellifera</i> )	LD <sub>50</sub> , contact	> 200 µg/bee	> 50 µg/bee	
		LD <sub>50</sub> , oral	> 25 µg/bee	> 2 µg/bee	

**Persistence and degradability** ....Azoxystrobin does not meet the criteria for being readily biodegradable, but it is degraded in the environment. Degradation occurs both by photolysis and by microbiological degradation. Primary degradation half-lives vary with circumstances, but are usually a few weeks in aerobic soil and water.

**Flutriafol** is not readily degradable. Primary degradation half-lives vary with circumstances, but are usually over 1 year in soil and water.

The product contains minor amounts of not readily biodegradable components, which may not be degradable in waste water treatment plants.

**Bioaccumulative potential** ..... Neither azoxystrobin nor flutriafol are expected to bioaccumulate.

The bioaccumulation factor of flutriafol is measured as 7 for whole fish (rainbow trout).

**Mobility in soil** .....Under normal conditions **azoxystrobin** has low to moderate mobility in soil.

**Flutriafol** has moderate mobility in soil. Absorption depends on soil pH and organic matter content.

**Results of PBT and vPvB assessment** .....None of the ingredients meets the criteria for being PBT or vPvB.

**Other adverse effects** .....Other relevant hazardous effects in the environment are not known.

## DISPOSAL CONSIDERATIONS:

Waste treatment methods .....Remaining quantities of the material and empty but unclean packaging should be regarded as hazardous waste.





Disposal of waste and packagings must always be in accordance with all applicable local regulations.

Disposal of product..... According to the Waste Framework Directive (2008/98/EC), possibilities for reuse or reprocessing should first be considered. If this is not feasible, the material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing.

Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Disposal of packaging .....It is recommended to consider possible ways of disposal in the following order:

1. Reuse or recycling should first be considered. If offered for recycling, containers must be emptied and triply rinsed (or equivalent). Do not discharge rinsing water to sewer systems.
2. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.
3. Delivery of the packaging to a licensed service for disposal of hazardous waste.
4. Disposal in a landfill or burning in open air should only occur if no other possibility exists. For disposal in a landfill containers should be emptied completely, rinsed and punctured to make them unusable for other purposes. If burned, stay out of smoke.

