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Product name	STEWARD®	
		March 2018
Safety data sheet according to EU Reg. 1907/2006 as amended		Supersedes 04.10.2016

SAFETY DATA SHEET STEWARD®

Revision: Sections containing a revision or new information are marked with a *****.

♦ SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1.	Product identifier	STEWARD®
1.2.	Relevant identified uses of the substance or mixture and uses advised against	Can be used as insecticide only.
1.3.	Details of the supplier of the safety data sheet	CHEMINOVA A/S , a subsidiary of FMC Corporation Thyborønvej 78 DK-7673 Harboøre Denmark <u>SDS.Ronland@fmc.com</u>
1.4.	Emergency telephone number <u>Medical emergencies:</u> Austria: +43 1 406 43 43 Belgium: +32 70 245 245	Norway: +47 22 591300 Poland: +48 22 619 66 54
	Bulgaria: +359 2 9154 409 Cyprus: 1401 Czech Republic: +420 224 919 293 +420 224 915 402	+48 22 619 08 97 Portugal: 808 250 143 (in Portugal only) +351 21 330 3284 Romania: +40 21318 3606
	Denmark: +45 82 12 12 12 France: +33 (0) 1 45 42 59 59 Finland: +358 9 471 977 Greece: 30 210 77 93 777	Slovakia: +421 2 54 77 4 166 Slovenia: +386 41 650 500 South Africa: +27 83 123 3911 (Bateleur Emergency Response Co.) Spain: +34 91 562 04 20
	Hungary: +36 80 20 11 99 Ireland (Republic): +353 1 809 2166 Italy: +39 02 6610 1029 Lithuania: +370 523 62052	Sweden: +46 08-331231 112 Switzerland: 145 Turkey: 114 United Kingdom: 111
	+370 687 53378 Luxembourg: +352 8002 5500 Netherlands: +31 30 274 88 88	U.S.A. & Canada: +1 800 / 331-3148 (ProPharma) All other countries: +1 651 / 632-6793 (ProPharma - Collect)

For fire, leak, spill or other accident emergencies:

U.S.A.: +1 800 / 424 9300 (CHEMTREC) All other countries: +1 703 / 527 3887 (CHEMTREC - Collect)



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♣ SECTION 2: HAZARDS IDENTIFICATION

P501

2.1.	Classification of the substance or mixture	Acute oral toxicity: Category 4 (H302) Specific target organ toxicity – repeated exposure: Category 1 (H372) Hazards to the aquatic environment, chronic: Category 1 (H410)
	WHO classification	Class II, moderately hazardous
	Health hazards	The product is harmful by ingestion. It may have several harmful effects on prolonged or repeated exposure.
	Environmental hazards	The product is toxic to aquatic organisms.
2.2.	Label elements <u>According to EU Reg. 1272/2008 as</u> Product identifier	amended STEWARD®
	Hazard pictogram (GHS07, GHS08, GHS09)	
	Signal word	Warning
	Hazard statements	
	H302	Harmful if swallowed.
	H302	May cause damage to organs. (Nervous system)
	H410	Very toxic to aquatic life with long lasting effects.
	Supplementary hazard statements EUH208 EUH401	Contains indoxacarb. May produce an allergic reaction. To avoid risks to human health and the environment, comply with the instructions of use.
	Precautionary statements	
	P260	Do not breathe vapours/spray
	P264	Wash hands thoroughly after handling.
	P270	Do not eat, drink or smoke when using this product.
	P309+P311	If exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.
	P391	Collect spillage

2.3. Other hazards
2.3. Other hazards

None of the ingredients in the products meets the criteria for being PBT or vPvB.

Dispose of contents / container to a licensed hazardous-waste disposal



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SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances	The product is a mixture, not a substance.
3.2. Mixtures	See section 16 for full text of hazard statements.
Active ingredient Indoxacarb CAS name	Content: 30% by weight Indeno[1,2-e][1,3,4]oxadiazine-4a(3H)-carboxylic acid, 7-chloro-2,5- dihydro-2-[[(methoxycarbonyl)[4-(trifluoromethoxy)phenyl]amino]-
CAS no IUPAC name	carbonyl]-, methyl ester 173584-44-6 Methyl (S)-N-[7-chloro-2,3,4a,5-tetrahydro-4a-(methoxycarbonyl)- indeno[1,2-e][1,3,4]oxadiazin-2-ylcarbonyl]-4'-(trifluoromethoxy)- carbanilate
ISO name/EU name EC no. (EINECS no.) EU index no Molecular weight Classification of the ingredient	Indoxacarb None 607-700-00-0 527.8 Acute oral toxicity: Category 3 (H301) Acute inhalation toxicity: Category 4 (H332) Sensitisation – skin: Category 1B (H317) Specific target organ toxicity – repeated exposure: Category 1 (H372) Hazards to the aquatic environment, acute: Category 1 (H400) chronic: Category 1 (H410)

SECTION 4: FIRST AID MEASURES

4.1.	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 remove contaminated clothing and footwear. Flush skin with water. 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. Get medical attention if irritation persists.
	Ingestion	 Call a doctor or get medical attention immediately. Make the exposed person rinse mouth and then drink 1 or 2 glasses of water or milk. Induce vomiting only if: 1. a significant amount (more than a mouthful) has been ingested 2. patient is fully conscious 3. medical aid is not readily available 4. time since ingestion is less than one hour.



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	ce vomiting by touching the back of the throat with g does occur, let him/her rinse mouth and drink
	rvous system: drowsiness, tremors, paralysis ly: cyanosis
and special	attention is required in case of ingestion. show this safety data sheet to physician.
Secondarily, it has	blocking sodium channels in the nervous system. oxidant effects on red blood cells causing a.
considered. After de	or administration of activated charcoal can be econtamination, treatment is primarily supportive consider possibility of methemoglobinemia and e blue if required.
	a finger. If vomiting fluids again. Acute effects on ner chronic, additionall immediate and special It may be helpful to Indoxacarb acts by Secondarily, it has of methemoglobinemia Gastric lavage and/o considered. After do and symptomatic. C

5.1.	Extinguishing media	Dry chemical or carbon dioxide for small fires, water spray or foam for large fires. Avoid heavy hose streams.
5.2.	Special hazards arising from the substance or mixture	The essential breakdown products are volatile, toxic, irritant and inflammable compounds such as nitrogen oxides, hydrogen fluoride, hydrogen chloride, nitrogen oxides, carbon monoxide, carbon dioxide and various fluorinated and chlorinated organic compounds.
5.3.	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.

♣ SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1.	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 tonnes of the product or more):1. use personal protection equipment; see section 82. call emergency telephone no.; see section 13. alert authorities.
		Observe all safety precautions when cleaning up spills. Use personal protection equipment. Depending on the magnitude of the spill this



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			may mean wearing respirator, face mask or resistant clothing, gloves and boots.	eye protection, chemical	
			Stop the source of the spill immediately if s reduce formation of vapour or dust as much		
6.2.	Enviroi	nmental precautions	Contain the spill to prevent any further con or water. Wash waters must be prevented fu drains. Uncontrolled discharge into water c the appropriate regulatory body.	rom entering surface water	
6.3.		s and materials for ment and cleaning up	It is recommended to consider possibilities to prevent damaging effects of spills, such as bunding or capping. See GHS (Annex 4, Section 6).		
			If appropriate, surface water drains should the floor or other impervious surface should or preferably vacuumed up using equipmen filter. Collect in suitable containers. Clean detergent and much water. Absorb wash lic absorbent such as universal binder, Fuller's absorbent clay and transfer contaminated al containers. The used containers should be p labelled.	d immediately be swept up at with high efficiency final area with strong industrial uid onto suitable inert s earth, bentonite or other bsorbent to suitable	
			Large spills which soak into the ground sho transferred to suitable containers.	ould be dug up and	
			Spills in water should be contained as much the contaminated water. The contaminated and removed for treatment or disposal.		
6.4.	Referen	ce to other sections	See subsection 8.2. for personal protection. See section 13 for disposal.		

SECTION 7: HANDLING AND STORAGE

7.1. 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. The material should be handled by mechanical means as much as possible. Adequate ventilation or local exhaust ventilation is required. The exhaust gases should be filtered or treated otherwise. For personal protection in this situation, see section 8.
 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, see section 8.



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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. Do not contaminate water when disposing of equipment wash waters. Collect all waste material and remains from cleaning equipment, etc., and dispose of as hazardous waste. See section 13 for disposal.

7.2. Conditions for safe storage, The product is stable under normal conditions of warehouse storage.

Store in 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.

7.3. **Specific end use(s)** The product is a registered pesticide which may only be used for the applications it is registered for, in accordance with a label approved by the regulatory authorities.

♣ SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1.	Control parameters Personal exposure limits	To our knowledge not established for any of the ingredients in this product. However, personal exposure limits defined by local regulations may exist and must be observed.
	Indoxacarb DNEL, systemic PNEC, aquatic environment	0.004 mg/kg bw/day 0.84 μg/l
8.2.	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.
		In cases of incidental high exposure, maximal personal protection may be necessary, such as respirator, face mask, chemical resistant coveralls.



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Respiratory protection	In the event of an accidental discharge of the material which produces a heavy vapour or dust, 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 or nitrile rubber. The breakthrough times of these materials for the product are unknown. Generally, however, the use of protective gloves will give only partial protection against dermal exposure. Small tears in the gloves and cross-contamination can easily occur. It is recommended to shift the gloves frequently and to limit the work to be done manually.
Eye protection	Wear safety glasses. It is recommended to have an eye wash fountain immediately available in the workplace 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

excessive or prolonged exposure, coveralls of barrier laminate may be

***** SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on physical ar	9.1.	Information	on	physical	and
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•	mormation on physical and		
	chemical properties		
	Appearance	Dark brown solid (grau	nules)
	Odour	Mild, woody	
	Odour threshold	Not determined	
	рН	10 g/l dispersion in wa	ter: 7.5 at 20°C
	Melting point	Not determined	
	Initial boiling point and boiling range	Not determined	
	Flash point	Not determined	
	Evaporation rate	Not determined	
	Flammability (solid/gas)	Not highly flammable	
	Upper/ lower flammability or		
	explosive limits	Not determined	
	Vapour pressure	Indoxacarb	: 4.0 x 10 ⁻¹⁰ Pa at 25°C
	Vapour density	Not determined	
	Relative density	0.8	
	Solubilities	Solubility of indoxaca	rb in:
		ethyl acetate	160 g/l
		heptane	1.72 g/l
		water	15 mg/l at 25°C
	Partition coefficient n-octanol/water	Indoxacarb	$\log K_{\rm ow} = 4.60$
			-

required.



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	Autoignition temperature	Not autoflammable	
	Decomposition temperature Viscosity	Not determined Not determined	
	Explosive properties	Not explosive	
	Oxidising properties	Not oxidising	
9.2.	Other information		
	Miscibility	The product is dispersible in water.	
♣ SE	CCTION 10: STABILITY AND REA	СТІVІТҮ	
10.1.	Reactivity	To our knowledge, the product has no special reactivities.	
10.2.	Chemical stability	The product is stable during normal handling and storage at ambient temperatures.	
10.3.	Possibility of hazardous reactions	None known.	
10.4. Conditions to avoid		Heating of the product will produce harmful and irritant vapours.	
10.5.	Incompatible materials	None known.	
10.6.	Hazardous decomposition products	See subsection 5.2.	
♣ SE	CTION 11: TOXICOLOGICAL IN	FORMATION	
11.1.	Information on toxicological effects	* = Based on available data, the classification criteria are not met.	
	<u>Product</u> Acute toxicity	The product is harmful by ingestion, but is not considered harmful by inhalation or skin contact. The acute toxicity is measured as:	
	Route(s) of entry - ingestion	LD ₅₀ , oral, rat (male): 1876 mg/kg (method OECD 401)	
		LD ₅₀ , oral, rat (female): 687 mg/kg	
	- skin	LD ₅₀ , dermal, rat: > 5000 mg/kg (method OECD 402)	
	- inhalation	LC_{50} , inhalation, rat: > 5.6 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 a skin sensitizer (method OECD 406). *	
	Germ cell mutagenicity	The product contains no ingredients known to be mutagenic. *	

Carcinogenicity The product contains no ingredients known to be carcinogenic. *

Reproductive toxicity The product contains no ingredients found to have adverse effects on reproduction. *



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STOT -	- single exposure	To our knowledge, no specific effects have been observed after single
		exposure. *
STOT -	repeated exposure	The following has been measured on the active ingredient indoxacarb: Target organ: blood and nervous system NOAEL: 0.6 mg/kg bw/day (10 ppm) in a 90-day oral rat study. At this exposure, oxidant-induced effects on red blood cells were observed.
Aspiration hazards Symptoms and effects, acute and delayed		The product contains no ingredients known to present an aspiration pneumonia hazard. *
		Acute effects on nervous system: drowsiness, tremors, paralysis Chronic, additionally: cyanosis
<u>Indoxa</u> Toxicol distribu	cinetics, metabolism and	After oral administration, indoxacarb is partially absorbed with highest levels found in fat and blood. Metabolism is extensive. Excretion is slow. Accumulation in fat and red blood cells is possible.
Acute to	oxicity	The substance is toxic by ingestion and may be harmful by inhalation. The acute toxicity is measured as:
Route(s) of entry - ingestion	LD ₅₀ , oral, rat: 268 mg/kg
	- skin	LD_{50} , dermal, rat: > 5000 mg/kg
	- inhalation	LC_{50} , inhalation, rat: > 5.5 mg/l
Skin co	rrosion/irritation	Not irritating to skin. *
Serious	eye damage/irritation	Not irritating to eyes. *
Respira	tory or skin sensitisation	Skin sensitizer.

***** SECTION 12: ECOLOGICAL INFORMATION

12.1. **Toxicity** The product is very toxic to insects and toxic aquatic organisms. It is not considered as harmful to birds and soil macro- and micro- organisms.

The ecotoxicity of the product is measured as:

- Fish	Rainbow trout (Oncorhynchus mykiss)	96-h LC ₅₀ : 1.8 mg/l
- Invertebrates	Daphnids (Daphnia magna)	48-h LC ₅₀ : 1.7 mg/l
- Algae	Green algae (Pseudokirchneriella subcapitata)	72-h E_bC_{50} : > 1.2 mg/l
- Birds	Bobwhite quail (Colinus virginianus)	LD ₅₀ : 580 mg/kg
- Insects	Bees (Apis mellifera)	48-h LD ₅₀ , contact: 0.0013 μg/bee 48-h LD ₅₀ , oral: 0.0016 μg/bee



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12.2.	Persistence and degradability	Indoxacarb is not readily biodegradable. Primary degradation half- lives vary with circumstances, but are usually several weeks in aerobic soil.
12.3.	Bioaccumulative potential	See section 9 for n-octanol/water partition coefficient.
		Indoxacarb has a low potential for bioaccumulation. The bioaccumulation factor (BCF) is measured to 950.
12.4.	Mobility in soil	Indoxacarb is not mobile in soil.
12.5.	Results of PBT and vPvB assessment	None of the ingredients meets the criteria for being PBT or vPvB.
12.6.	Other adverse effects	Other relevant hazardous effects in the environment are not known.
♣ SE	CTION 13: DISPOSAL CONSIDERA	ATIONS
13.1.	Waste treatment methods	Remaining quantities of the material and empty but unclean packaging should be regarded as hazardous waste.
	Disposal of product	Disposal of waste and packagings must always be in accordance with all applicable local regulations.
		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.
	Disposal of packaging	Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.
		 It is recommended to consider possible ways of disposal in the following order: 1. Reuse or recycling should first be considered. Reuse is prohibited except by the authorisation holder. 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 as a last resort. 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.



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SECTION 14: TRANSPORT INFORMATION

ADR/RID/IMDG/IATA/ICAO classification

14.1.	UN number	3077
14.2.	UN proper shipping name	Environmentally hazardous substance, solid, n.o.s. (indoxacarb)
14.3.	Transport hazard class(es)	9
14.4.	Packing group	III
14.5.	Environmental hazards	Marine pollutant
14.6.	Special precautions for user	Avoid any unnecessary contact with the product. Misuse can result in damage to health. Do not discharge to the environment.
14.7.	Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code	The product is not transported in bulk by ship.
♣ SE	CCTION 15: REGULATORY INFORM	IATION
15.1.	Safety, health and environmental regulations/legislation specific for	Seveso category (Dir. 2012/18/EU): dangerous for the environment
	the substance or mixture	All ingredients are covered by EU chemical legislation.
15.2.	Chemical safety assessment	A chemical safety assessment is not required to be included for this product.
♣ SE	ECTION 16: OTHER INFORMATION	1
	Relevant changes in the safety data sheet	Numerous changes have been made to apart the format of the safety data sheet, but these do not include new information on hazardous

sheet		s changes have been made to apart the format of the safety , but these do not include new information on hazardous
List of abbreviations	CAS	Chemical Abstracts Service
	Dir.	Directive
	DNEL	Derived No Effect Level
	EC	European Community
	EC_{50}	50% Effect Concentration
	E_bC_{50}	50% Effect Concentration based on biomass
	EINECS	European INventory of Existing Commercial Chemical
		Substances
	GHS	Globally Harmonized classification and labelling System
		of chemicals, Fifth revised edition 2013
	IBC	International Bulk Chemical code
	ISO	International Organisation for Standardization
	IUPAC	International Union of Pure and Applied Chemistry
	LC ₅₀	50% Lethal Concentration



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	LD5050% Lethal DoseMARPOLSet of rules from the International Maritime Organisation (IMO) for prevention of sea pollutionNOAELNo Observed Adverse Effect Leveln.o.s.Not otherwise specifiedOECDOrganisation for Economic Cooperation and DevelopmentPBTPersistent, Bioaccumulative, ToxicPNECPredicted No Effect ConcentrationReg.RegulationSTOTSpecific Target Organ ToxicityvPvBvery Persistent, very BioaccumulativeWHOWorld Health Organisation
References	Data measured on the product are unpublished company data. Data on ingredients are available from published literature and can be found several places.
Method for classification	Acute oral toxicity: test data Specific target organ toxicity – repeated exposure: calculation rules Hazards to the aquatic environment, chronic: calculation rules
Used hazard statements	 H301 Toxic if swallowed. H302 Harmful if swallowed. H317 May cause an allergic skin reaction. H332 Harmful if inhaled. H372 Causes damage to the blood and nervous system through prolonged or repeated exposure. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects. EUH208 Contains indoxacarb. May produce an allergic reaction. EUH401 To avoid risks to human health and the environment, comply with the instructions of use.
Advice on training	This material should only be used by persons who are made aware of its hazardous properties and have been instructed in the required safety precautions.

The information provided in this safety data sheet is believed to be accurate and reliable, but uses of the product vary and situations unforeseen by FMC Corporation may exist. The user has to check the validity of the information under local circumstances.

Prepared by: FMC Corporation / Cheminova A/S / GHB