BIO GREEN 390U 2

Version Number 1.0 Revision Date 02/23/2016 PolyOne.

Page 1 of 15 Print Date 02/24/2016

SAFETY DATA SHEET

BIO GREEN 390U 2

Section 1. Identification		
GHS product identifier Chemical name CAS number Other means of identification	:	BIO GREEN 390U 2 Mixture Mixture CC10235190
Product type	:	solid
Relevant identified uses of the subs	stance	or mixture and uses advised against
Product use	:	Industrial applications. Plastics.
Supplier's details	:	POLYONE CORPORATION 33587 Walker Road, Avon Lake, OH 44012
		1 (440) 930-1000 or 1 (866) POLYONE
Emergency telephone number (with hours of operation)	:	CHEMTREC 1-800-424-9300 (24hrs for spill, leak, fire, exposure or accident).

Section 2. Hazards identification

This mixture has not been evaluated as a whole. Information provided on the health effects of this product is based on individual components. All ingredients are bound and potential for hazardous exposure as shipped is minimal. However, some vapors may be released upon heating and the end-user (fabricator) must take the necessary precautions (mechanical ventilation, respiratory protection, etc.) to protect employees from exposure. After handling, always wash hands thoroughly with soap and water.

OSHA/HCS status	:	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
Classification of the substance or mixture	:	Not classified.
GHS label elements		
Signal word	:	No signal word.
		1/15

BIO GREEN 390U 2

Version Number 1.0 Revision Date 02/23/2016 <u>PolyOne</u>

Page 2 of 15 Print Date 02/24/2016

Hazard statements

No known significant effects or critical hazards.

Precautionary statements

General	:	Not applicable.
Prevention	:	Not applicable.
Response	:	Not applicable.
Storage	:	Not applicable.
Disposal	:	Not applicable.
Supplemental label elements	:	None known.
Hazards not otherwise classified	:	None known.

Section 3. Composition/information on ingredients

:

Substance/mixture	:	Mixture
Chemical name	:	Mixture
Other means of identification	:	CC10235190

CAS number/other identifiers

Ingredient name	%	CAS number
Titanium dioxide	5 - 10	13463-67-7
Carbon black	0.1 - 0.3	1333-86-4

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact

: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses.



BIO GREEN 390U 2

Version Number 1.0	Page 3 of 15
Revision Date 02/23/2016	Print Date 02/24/2016

		Get medical attention if irritation occurs.
Inhalation	:	Remove victim to fresh air and keep at rest in a position comfortable
		for breathing. Get medical attention if symptoms occur. In case of
		inhalation of decomposition products in a fire, symptoms may be
		delayed. The exposed person may need to be kept under medical
		surveillance for 48 hours.
Skin contact	:	Flush contaminated skin with plenty of water. Remove contaminated
		clothing and shoes. Get medical attention if symptoms occur.
Ingestion	:	Wash out mouth with water. Remove victim to fresh air and keep at
		rest in a position comfortable for breathing. If material has been
		swallowed and the exposed person is conscious, give small quantities
		of water to drink. Do not induce vomiting unless directed to do so by
		medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects	
Eye contact Inhalation Skin contact Ingestion Over-exposure signs/symptoms	 No known significant effects or critical hazards.
Eye contact	: No specific data.
Inhalation	: No specific data.
Skin contact	: No specific data.
Ingestion	: No specific data.
Indication of immediate medical a	attention and special treatment needed, if necessary
Notes to physician	: In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Specific treatments	No specific treatment.
Protection of first-aiders	: No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

BIO GREEN 390U 2

PolyOne

Version Number 1.0	Page 4 of 15
Revision Date 02/23/2016	Print Date 02/24/2016

Extinguishing media

Suitable extinguishing media Unsuitable extinguishing media	:	In case of fire, use water spray (fog), foam, dry chemical or $\rm CO_2$. None known.
Specific hazards arising from the chemical	:	No specific fire or explosion hazard.
Hazardous thermal decomposition products	:	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides metal oxide/oxides
Special protective actions for fire- fighters	:	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	:	Fire-fighters should wear appropriate protective equipment and self- contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel For emergency responders	:	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment. If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Environmental precautions	:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Methods and materials for containme	ent ai	nd cleaning up
Small spill	:	Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
Large spill	:	Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a

BIO GREEN 390U 2

Version Number 1.0 Revision Date 02/23/2016



Page 5 of 15 Print Date 02/24/2016

licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures Advice on general occupational hygiene	:	Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
Conditions for safe storage, including any incompatibilities	:	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Carbon black	OSHA PEL 1989 (1989-03-01)
	PEL: Permissible Exposure Level 3.5 mg/m3
	OSHA PEL (1993-06-30)
	PEL: Permissible Exposure Level 3.5 mg/m3
	NIOSH REL (1994-06-01)
	Time Weighted Average (TWA) 3.5 mg/m3
	Time Weighted Average (TWA)
	ACGIH TLV (2010-12-06)
	TLV-TWA: Threshold Limit Value - Time weighted average PEL:
	Permissible Exposure Level 3 mg/m3 Form: Inhalable fraction



BIO GREEN 390U 2

Version Number 1.0 Revision Date 02/23/2016

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Titanium dioxide		OSHA PEL 1989 (1989-03-01) PEL: Permissible Exposure Level 10 mg/m3 Form: Total dust
		OSHA PEL (1993-06-30)
		PEL: Permissible Exposure Level 15 mg/m3 Form: Total dust
		NIOSH REL (1994-06-01)
		ACGIH TLV (1996-05-18)
		TLV-TWA: Threshold Limit Value - Time weighted average PEL: Permissible Exposure Level 10 mg/m3
		remissible Exposure Level 10 mg/m3
Appropriate engineering controls	:	Good general ventilation should be sufficient to control worker
		exposure to airborne contaminants.
Environmental exposure controls	:	Emissions from ventilation or work process equipment should be
		checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers,
		filters or engineering modifications to the process equipment will be
		necessary to reduce emissions to acceptable levels.
Individual protection measures		
Hygiene measures	:	Wash hands, forearms and face thoroughly after handling chemical
		products, before eating, smoking and using the lavatory and at the end
		of the working period. Appropriate techniques should be used to
		remove potentially contaminated clothing. Wash contaminated
		clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Eye/face protection	:	Safety eyewear complying with an approved standard should be used
Eyenace protection	•	when a risk assessment indicates this is necessary to avoid exposure to
		liquid splashes, mists, gases or dusts. If contact is possible, the
		following protection should be worn, unless the assessment indicates a
		higher degree of protection: safety glasses with side-shields.
Skin protection		
Hand protection	:	Chemical-resistant, impervious gloves complying with an approved
		standard should be worn at all times when handling chemical products
Pody protection		if a risk assessment indicates this is necessary. Personal protective equipment for the body should be selected based
Body protection	:	on the task being performed and the risks involved and should be
		approved by a specialist before handling this product.
Other skin protection	:	Appropriate footwear and any additional skin protection measures
· · · · · · · · · · · · · · · · · · ·		should be selected based on the task being performed and the risks
		involved and should be approved by a specialist before handling this
		product.
Respiratory protection	:	Use a properly fitted, particulate filter respirator complying with an
		6/15

<u>PolyOne</u>.

BIO GREEN 390U 2

Version Number 1.0 Revision Date 02/23/2016 Page 7 of 15 Print Date 02/24/2016

approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state	:	solid [Pellets.]
Color	:	GREEN
Odor	:	Faint odor.
Odor threshold	:	Not available.
pH	:	Not available.
Melting point	:	Not available.
Boiling point	:	Not available.
Flash point	:	Not available.
Burning time	:	Not available.
Burning rate	:	Not available.
Evaporation rate	:	Not available.
Flammability (solid, gas)	:	Not available.
Lower and upper explosive	:	Lower: Not available.
(flammable) limits		Upper: Not available.
Vapor pressure	:	Not available.
Vapor density	:	Not available.
Relative density	:	Not available.
Solubility	:	Not available.
Solubility in water	:	insoluble in water.
Partition coefficient: n- octanol/water	:	Not available.
Auto-ignition temperature	:	Not available.
Decomposition temperature	:	Not available.
SADT	:	Not available.
Viscosity	:	Dynamic: Not available.
		Kinematic: Not available.

Section 10. Stability and reactivity

Reactivity	:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	:	Stable under recommended storage and handling conditions (see Section 7).
Possibility of hazardous reactions	:	Under normal conditions of storage and use, hazardous reactions will



BIO GREEN 390U 2

Version Number 1.0Page 8 of 15Revision Date 02/23/2016Print Date 02/24/2016

		not occur.
Conditions to avoid	:	Keep away from extreme heat and oxidizing agents.
Incompatible materials	:	Keep away from strong acids.
		Oxidizer.
Hazardous decomposition products	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

This mixture has not been evaluated as a whole for health effects. Exposure effects listed are based on existing health data for the individual components which comprise the mixture.

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Titanium dioxide				
	LC50 Inhalation	Rat - Male	6.82 Mg/l	4 h
	LD50 Dermal	Rabbit	> 5,000 mg/kg	-
Carbon black				
	LD50 Oral	Rat	15,400 mg/kg	-
Conclusion/Summary : Mixture.Not fully tested.				

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Titanium dioxide	Skin - Mild	Human		72 hrs	-
	irritant				
Conclusion/Summary					
Skin	: N	/lixture.Not fu	illy tested.		
Eyes	: N	/lixture.Not fu	illy tested.		
Respiratory	: N	/lixture.Not fu	illy tested.		
<u>Sensitization</u> Conclusion/Summary Skin Respiratory		Лixture.Not fu Лixture.Not fu	•		
<u>Mutagenicity</u> Conclusion/Summary	: N	/lixture.Not fu	illy tested.		



BIO GREEN 390U 2

Version Number 1.0 Revision Date 02/23/2016 Page 9 of 15 Print Date 02/24/2016

Carcinogenicity

Conclusion/Summary <u>Classification</u>	:	Mixture.Not ful	lly tested.
Product/ingredient name	OSHA	IARC	NTP
Titanium dioxide		2B	
Carbon black		2B	
Reproductive toxicity			
Conclusion/Summary	:	Mixture.Not ful	lly tested.
Teratogenicity			
Conclusion/Summary	:	Mixture.Not ful	lly tested.
Specific target organ toxicity Not available.	(single expo	<u>osure)</u>	
Specific target organ toxicity Not available.	(repeated e	<u>xposure)</u>	
Aspiration hazard Not available.			
Information on the likely rout exposure	es of :	Not available.	
Potential acute health effects			
Eye contact	:	No known sign	ificant effects or critical hazards.
Inhalation	:		ificant effects or critical hazards.
Skin contact	:	No known sign	ificant effects or critical hazards.
Ingestion	:	No known sign	ificant effects or critical hazards.
Symptoms related to the phys	ical, chemic	al and toxicolog	cical characteristics
Eye contact	:	No specific data	1.
Inhalation	:	No specific data	
Skin contact		No specific data	
Ingestion		No specific data	
Delayed and immediate effect	s and also c	hronic effects fr	om short and long term exposure

BIO GREEN 390U 2

Version Number 1.0 Revision Date 02/23/2016

<u>vOne</u>

Page 10 of 15 Print Date 02/24/2016

Short term exposure

Potential immediate effects Potential delayed effects	:	Not available. Not available.
Long term exposure		
Potential immediate effects Potential delayed effects	:	Not available. Not available.
Potential chronic health effects		
Conclusion/Summary	:	Mixture.Not fully tested.
General Carcinogenicity Mutagenicity Teratogenicity Developmental effects	: : : : : : : : : : : : : : : : : : : :	No known significant effects or critical hazards. No known significant effects or critical hazards.
Fertility effects	:	No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Titanium dioxide			
	Acute LC50 > 1,000,000 μg/l	Fish - Fish	96 h
	Marine water		
	Acute $LC50 > 1,000 \text{ mg/l Fresh}$	Fish - Fish	96 h
	water		
	Acute LC50 13 mg/l Fresh water	Aquatic invertebrates.	48 h
		Daphnia	
	Acute LC50 6.5 mg/l Fresh water	Aquatic invertebrates.	48 h
		Daphnia	
	Acute LC50 3 mg/l Fresh water	Aquatic invertebrates.	48 h
		Crustaceans	
	10/15		



BIO GREEN 390U 2

Version Number 1.0 Revision Date 02/23/2016

	Acute LC50 15.9 mg/l Fresh water	Aquatic invertebrates.	48 h	
		Crustaceans		
	Acute LC50 3.6 mg/l Fresh water	Aquatic invertebrates.	48 h	
		Crustaceans		
	Acute LC50 11 mg/l Fresh water	Aquatic invertebrates.	48 h	
		Crustaceans		
	Acute LC50 13.4 mg/l Fresh water	Aquatic invertebrates.	48 h	
		Crustaceans		
	Acute EC50 27.8 mg/l Fresh water	Aquatic invertebrates.	48 h	
		Daphnia		
	Acute EC50 19.3 mg/l Fresh water	Aquatic invertebrates.	48 h	
		Daphnia		
	Acute EC50 35.306 mg/l Fresh	Aquatic invertebrates.	48 h	
	water	Daphnia		
Carbon black				
	Acute EC50 37.563 mg/l Fresh	Aquatic invertebrates.	48 h	
	water	Daphnia		
	Acute LC50 61.547 mg/l Fresh	Aquatic invertebrates.	48 h	
	water	Daphnia		
BIO GREEN 390U 2				
Remarks - Acute - Aquatic invertebrates.:	Chemicals are not readily available a	as they are bound within the	e polymer matrix.	
Conclusion/Summary	: Chemicals are not readily	ly available as they are bou	nd within the	
	polymer matrix.			
Persistence and degradability	<u>7</u>			
Conclusion/Summary	: Chemicals are not readil polymer matrix.	ly available as they are bou	nd within the	
Conclusion/Summary	: Chemicals are not readily available as they are bound within the polymer matrix.			

Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
Titanium dioxide		352.00	low

Mobility in soil

Soil/water partition coefficient	:	Not available.
(KOC)		
Other adverse effects	:	No known significant effects or critical hazards.

BIO GREEN 390U 2

Version Number 1.0 Revision Date 02/23/2016

PolyOne

Page 12 of 15 Print Date 02/24/2016

Section 13. Disposal considerations

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Disposal methods

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

United States - RCRA Acute hazardous waste "P" List: Not listed

United States - RCRA Toxic hazardous waste "U" List: Not listed

Section 14. Transport information

U.S. DOT Classification	:	Not regulated for transportation.
ICAO/IATA	:	Not classified as dangerous good under transport regulations.
IMO/IMDG (maritime)	:	Not classified as dangerous good under transport regulations.

Section 15. Regulatory information

U.S. Federal regulations	 United States - TSCA 12(b) - Chemical export notification: None of the components are listed. United States - TSCA 4(a) - Final Test Rules: Not listed United States - TSCA 4(a) - ITC Priority list: Not listed United States - TSCA 4(a) - Proposed test rules: Not listed United States - TSCA 4(f) - Priority risk review: Not listed United States - TSCA 4(f) - Priority risk review: Not listed United States - TSCA 5(a)2 - Final significant new use rules: Not listed United States - TSCA 5(a)2 - Proposed significant new use rules: Not listed United States - TSCA 5(e) - Substances consent order: Not listed United States - TSCA 6 - Final risk management: Not listed United States - TSCA 6 - Proposed risk management: Not listed United States - TSCA 8(a) - Chemical risk rules: Not listed
	AD/45

BIO GREEN 390U 2

PolyOne.

Version Number 1.0 Revision Date 02/23/2016		Page 13 of 15 Print Date 02/24/2016
		 United States - TSCA 8(a) - Dioxin/Furane precusor: Not listed United States - TSCA 8(a) - Chemical Data Reporting (CDR): Not determined United States - TSCA 8(a) - Preliminary assessment report (PAIR): Not listed United States - TSCA 8(c) - Significant adverse reaction (SAR): Not listed United States - TSCA 8(d) - Health and safety studies: Not listed United States - EPA Clean water act (CWA) section 307 - Priority pollutants: Listed Phthalocyanine green Titanium dioxide United States - EPA Clean water act (CWA) section 311 - Hazardous substances: Not listed United States - EPA Clean air act (CAA) section 112 - Accidental release prevention - Flammable substances: Not listed United States - EPA Clean air act (CAA) section 112 - Accidental release prevention - Toxic substances: Not listed
		Not listed
Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)	:	Not listed
Clean Air Act Section 602 Class I Substances	:	Not listed
Clean Air Act Section 602 Class II Substances	:	Not listed
DEA List I Chemicals (Precursor Chemicals)	:	Not listed

DEA List II Chemicals (Essential : Not listed **Chemicals**)

US. EPA CERCLA Hazardous Substances (40 CFR 302)

not applicable

SARA 311/312

Classification

Not applicable.

:

Composition/information on ingredients

Name	%	Classification
Titanium dioxide	5 - 10	F
Carbon black	0.1 - 0.3	СН



BIO GREEN 390U 2

Version Number 1.0 Revision Date 02/23/2016 Page 14 of 15 Print Date 02/24/2016

SARA 313

	Product name	CAS number	%
Form R - Reporting	Titanium dioxide	13463-67-7	5 - 10
requirements			
Supplier notification	Titanium dioxide	13463-67-7	5 - 10

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

<u>State regulations</u>	
Massachusetts	: The following components are listed: Titanium dioxide
New York	: None of the components are listed.
New Jersey	: The following components are listed: Titanium dioxide Carbon black
Pennsylvania	: The following components are listed: Titanium dioxide
	Carbon black

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

United States inventory (TSCA 8b)	:	All components are listed or exempted.
Canada inventory	:	All components are listed or exempted.
International regulations		
International lists	:	 Australia inventory (AICS): All components are listed or exempted. Taiwan inventory (CSNN): All components are listed or exempted. Malaysia Inventory (EHS Register): Not determined. EINECS: All components are listed or exempted. Japan inventory: Not determined. China inventory (IECSC): All components are listed or exempted. Korea inventory: All components are listed or exempted. New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted. Philippines inventory (PICCS): Not determined.
Chemical Weapons Convention	:	Not listed
		4 4 / 4 5

14/15

BIO GREEN 390U 2

Version Number 1.0 Revision Date 02/23/2016 <u>PolyOne</u>

Page 15 of 15 Print Date 02/24/2016

List Schedule I Chemicals		
Chemical Weapons Convention	:	Not listed
List Schedule II Chemicals		
Chemical Weapons Convention	:	Not listed
List Schedule III Chemicals		

Section 16. Other information

History		
Date of printing	:	02/24/2016
Date of issue/Date of revision	:	02/23/2016
Date of previous issue	:	00/00/0000
Version	:	1.0
Key to abbreviations	:	ATE = Acute Toxicity Estimate
•		BCF = Bioconcentration Factor
		GHS = Globally Harmonized System of Classification and Labelling of
		Chemicals
		IATA = International Air Transport Association
		IBC = Intermediate Bulk Container
		IMDG = International Maritime Dangerous Goods
		LogPow = logarithm of the octanol/water partition coefficient
		MARPOL $73/78$ = International Convention for the Prevention of Pollution
		From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine
		pollution)
		UN = United Nations
References	:	Not available.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the abovenamed supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. Particularly this information may not be valid for such material used in conjunction with any other materials or in any process, unless specified in the text.