SAFETY DATA SHEETS

This SDS packet was issued with item:

078390392

The safety data sheets (SDS) in this packet apply to the individual products listed below. Please refer to invoice for specific item number(s).

078390269



SAFETY DATA SHEET

1. Identification

Product identifier Somnu Shield

Other means of identification

Item Code AV6260

Veterinary Vaccine Recommended use **Recommended restrictions** None known.

Manufacturer/Importer/Supplier/Distributor information Elanco Animal Health **Company Name**

2500 Innovation Way Greenfield, IN 46140

US

Phone: 1-877-Elanco1 (1-877-352-6261)

Email: lilly_msds@lilly.com

Elanco Product Technical Support / Human or Animal Exposure Reporting: **Emergency Telephone**

1-888-545-5973 Numbers:

Transportation Emergency

Telephone:

CHEMTREC: 1-800-424-9300 (Outside U.S. 1-703-527-3887)

2. Hazard(s) identification

Physical hazards Not classified. **Health hazards** Not classified. **OSHA** defined hazards Not classified.

Label elements

Hazard symbol None. Signal word None.

Hazard statement The mixture does not meet the criteria for classification.

Precautionary statement

Not available. Prevention Not available. Response Not available. **Storage** Not available. **Disposal**

Hazard(s) not otherwise

classified (HNOC)

None known.

Supplemental information None.

3. Composition/information on ingredients

Mixtures

Chemical name Common name and synonyms CAS number % **FORMALDEHYDE** 50-00-0 <= 0.074

Composition comments Remaining components of this product are non-hazardous and/or are present at concentrations

below reportable levels.

4. First-aid measures

Move to fresh air. Call a physician if symptoms develop or persist. Inhalation

Skin contact Wash off with soap and water. Get medical attention if irritation develops and persists.

Rinse with water. Get medical attention if irritation develops and persists. Eve contact

Material name: Somnu Shield

6628 Version #: 01 Issue date: 04-06-2017

SDS US 1/6 **Ingestion** Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content

doesn't get into the lungs. Never give anything by mouth to a victim who is unconscious or is

having convulsions. Get medical attention.

Most important

symptoms/effects, acute and

delayed

General information

None known.

If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media

Unsuitable extinguishing

media

Specific hazards arising from the chemical

Special protective equipment and precautions for firefighters

Use fire-extinguishing media appropriate for surrounding materials.

Not available.

Not applicable.

Wear suitable protective equipment.

General fire hazards No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Prevent entry into waterways, sewer, basements or confined areas.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS)

ities of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Туре	Value	
FORMALDEHYDE (CAS 50-00-0)	Ceiling	0.3 ppm	
US. OSHA Specifically Regulated	d Substances (29 CFR 1910.100	1-1050)	
Components	Type	Value	
FORMALDEHYDE (CAS 50-00-0)	STEL	2 ppm	
	TWA	0.75 ppm	
US. NIOSH: Pocket Guide to Che	mical Hazards		
Components	Туре	Value	
FORMALDEHYDE (CAS 50-00-0)	Ceiling	0.1 ppm	
	TWA	0.016 ppm	

Biological limit values
Appropriate engineering
controls

No biological exposure limits noted for the ingredient(s). Ensure adequate ventilation, especially in confined areas.

Material name: Somnu Shield

6628 Version #: 01 Issue date: 04-06-2017

Individual protection measures, such as personal protective equipment

Eye/face protection Safety glasses.

Skin protection

Hand protection Wear appropriate chemical resistant gloves.

Wear suitable protective clothing. Other

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards Not available.

General hygiene considerations

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective

equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state Liquid. Liquid **Form**

Not available. Color Odor Not available. **Odor threshold** Not available. Not available. Not available. Melting point/freezing point Initial boiling point and boiling Not available.

range

Not available. Flash point Not available. **Evaporation rate** Flammability (solid, gas) Not available. Upper/lower flammability or explosive limits

Flammability limit - lower

(%)

Not available.

Flammability limit - upper

(%)

Not available.

Explosive limit - lower (%) Not available. Explosive limit - upper (%) Not available. Not available.

Vapor pressure Not available. Vapor density Not available. Relative density

Solubility(ies)

Solubility (water) Not available. Partition coefficient Not available.

(n-octanol/water)

Not available. **Auto-ignition temperature** Not available. **Decomposition temperature** Not available. **Viscosity**

Other information

Explosive properties Not explosive. Oxidizing properties Not oxidizing.

10. Stability and reactivity

Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability Material is stable under normal conditions. Possibility of hazardous Hazardous polymerization does not occur.

reactions

Conditions to avoid

Contact with incompatible materials.

Incompatible materials Strong oxidizing agents.

Material name: Somnu Shield

6628 Version #: 01 Issue date: 04-06-2017

SDS US

No hazardous decomposition products are known.

11. Toxicological information

Information on toxicological effects

Acute toxicity

Components **Species Test Results**

FORMALDEHYDE (CAS 50-00-0)

Acute Inhalation

LC50 Rat 10500 mg/m³, 4 hours

Oral

LD50 Rat 640 mg/kg

Skin corrosion/irritation Rabbit: Corrosive. (Formaldehyde)

Based on available data, the classification criteria are not met.

Serious eye damage/eye

Rabbit: Corrosive. (Formaldehyde)

Based on available data, the classification criteria are not met. irritation

Respiratory or skin sensitization

ACGIH sensitization

FORMALDEHYDE (CAS 50-00-0) Dermal sensitization

Respiratory sensitization

Exposure to formaldehyde may cause respiratory sensitization in some individuals or aggravate Respiratory sensitization

pre-existing asthmatic conditions.

Based on available data, the classification criteria are not met.

May cause an allergic skin reaction. (Formaldehyde) Skin sensitization

Based on available data, the classification criteria are not met.

Result in genetic toxicity assays (in vitro and in vivo): Mixed results (Formaldehyde) Germ cell mutagenicity

Based on available data, the classification criteria are not met.

May cause cancer. (Formaldehyde) Carcinogenicity

Based on available data, the classification criteria are not met.

IARC Monographs. Overall Evaluation of Carcinogenicity

FORMALDEHYDE (CAS 50-00-0) 1 Carcinogenic to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

FORMALDEHYDE (CAS 50-00-0)

US. National Toxicology Program (NTP) Report on Carcinogens

FORMALDEHYDE (CAS 50-00-0) Known To Be Human Carcinogen.

No effects identified in animal studies. (Formaldehyde) Reproductive toxicity

Based on available data, the classification criteria are not met.

Specific target organ toxicity -

single exposure

May cause respiratory irritation. (Formaldehyde)

Based on available data, the classification criteria are not met.

Specific target organ toxicity -

repeated exposure

No significant target organ toxicity reported. (Formaldehyde)

Based on available data, the classification criteria are not met.

Aspiration hazard Not available.

12. Ecological information

Ecotoxicity

Components **Species Test Results**

FORMALDEHYDE (CAS 50-00-0)

Aquatic

Acute

Crustacea EC50 Water flea (Daphnia magna) 29 mg/l, 48 hours Fish LC50 Fathead minnow (Pimephales promelas) 24.1 mg/l, 96 hours

Chronic

NOEC Fish Medaka, high-eyes (Oryzias latipes) > 48 mg/l, 28 days

Persistence and degradability No data is available on the degradability of this product.

Material name: Somnu Shield SDS US 4/6 6628 Version #: 01 Issue date: 04-06-2017

Bioaccumulative potential No data available.

Mobility in soil No data available.

Other adverse effects Not available.

13. Disposal considerations

Disposal methods/information Dispose of contents/container in accordance with local/regional/national/international regulations.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to

Not established.

Annex II of MARPOL 73/78 and

the IBC Code

15. Regulatory information

US federal regulations This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard

Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

FORMALDEHYDE (CAS 50-00-0) Listed.

SARA 304 Emergency release notification

FORMALDEHYDE (CAS 50-00-0) 100 LBS

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

FORMALDEHYDE (CAS 50-00-0) Cancer

Skin sensitization Respiratory sensitization

Eye irritation Skin irritation

respiratory tract irritation

Acute toxicity Flammability

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - No

Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

FORMALDEHYDE (CAS 50-00-0)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

FORMALDEHYDE (CAS 50-00-0)

Safe Drinking Water Act Not regulated.

(SDWA)

US state regulations

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

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

FORMALDEHYDE (CAS 50-00-0) Listed: January 1, 1988

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

FORMALDEHYDE (CAS 50-00-0)

Material name: Somnu Shield sps us

International Inventories

Country(s) or regionInventory nameOn inventory (yes/no)*CanadaDomestic Substances List (DSL)No

Canada Non-Domestic Substances List (NDSL) No

United States & Puerto Rico Toxic Substances Control Act (TSCA) Inventory

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 04-06-2017

Version # 01

List of abbreviations TWA: Time Weighted Average

Disclaimer As of the date of issuance, we are providing available information relevant to the handling of this

material in the workplace. All information contained herein is offered with the good faith belief that it is accurate. THIS MATERIAL SAFETY DATA SHEET SHALL NOT BE DEEMED TO CREATE ANY WARRANTY OF ANY KIND (INCLUDING WARRANTY OF MERCHANT ABILITY OR FITNESS FOR A PARTICULAR PURPOSE). In the event of an adverse incident associated with this material, this safety data sheet is not intended to be a substitute for consultation with appropriately trained personnel. Nor is this safety data sheet intended to be a substitute for

product literature which may accompany the finished product.

For additional information contact:

Elanco Animal Health 0011+1-877-352-6261 0011+1-800-428-4441

Material name: Somnu Shield sps us

No



SAFETY DATA SHEET

1. Identification

Product identifier Somnu Shield

Other means of identification

Item Code AV6260

Recommended use Veterinary Vaccine **Recommended restrictions** None known.

Manufacturer/Importer/Supplier/Distributor information

Company Name

Elanco Animal Health

2500 Innovation Way Greenfield, IN 46140

US

Phone: 1-877-Elanco1 (1-877-352-6261)

Emergency Telephone: Elanco Product Technical Support / Human or Animal Exposure Reporting:

1-888-545-5973

Email: elanco_sds@elanco.com

Transportation Emergency CHEMTREC: 1-800-424-9300

Telephone: (Outside U.S. 1-703-527-3887)

2. Hazard(s) identification

Physical hazards Not classified.
Health hazards Not classified.
OSHA defined hazards Not classified.

Label elements

Hazard symbol None.
Signal word None.

Hazard statement The mixture does not meet the criteria for classification.

Precautionary statement

PreventionNot available.ResponseNot available.StorageNot available.DisposalNot available.

Hazard(s) not otherwise

classified (HNOC)

None known.

Supplemental information None.

6628 Version #: 02 Revision date: 04-09-2019

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
FORMALDEHYDE		50-00-0	<= 0.074

Composition comments Remaining components of this product are non-hazardous and/or are present at concentrations

below reportable levels.

4. First-aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact Wash off with soap and water. Get medical attention if irritation develops and persists.

Eye contact Rinse with water. Get medical attention if irritation develops and persists.

Issue date: 04-06-2017

Material name: Somnu Shield sps us

1/6

Ingestion Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content

doesn't get into the lungs. Never give anything by mouth to a victim who is unconscious or is

having convulsions. Get medical attention.

Most important

symptoms/effects, acute and

delayed

General information

None known.

If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media

Unsuitable extinguishing

media

Specific hazards arising from

the chemical

Special protective equipment and precautions for firefighters

Use fire-extinguishing media appropriate for surrounding materials.

Not available.

Not applicable.

Wear suitable protective equipment.

General fire hazards No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Not available.

Methods and materials for containment and cleaning up

Prevent entry into waterways, sewer, basements or confined areas.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product

recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to

remove residual contamination.

Never return spills to original containers for re-use.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling Conditions for safe storage, including any incompatibilities Observe good industrial hygiene practices. Store in original tightly closed container.

8. Exposure controls/personal protection

Occupational exposure limits

Components	Туре	Value	
Formaldehyde (CAS 50-00-0)	STEL	2 ppm	
	TWA	0.75 ppm	
US. ACGIH Threshold Lin	mit Values		
Components	Туре	Value	
Formaldehyde (CAS 50-00-0)	Ceiling	0.3 ppm	
US. NIOSH: Pocket Guide	e to Chemical Hazards		
Components	Туре	Value	
Formaldehyde (CAS 50-00-0)	Ceiling	0.1 ppm	
	TWA	0.016 ppm	
logical limit values	No biological exposure limits noted for the ingredient(s).		
propriate engineering	Ensure adequate ventilation, especially in confined areas.		

Material name: Somnu Shield

controls

SDS US

6628 Version #: 02 Revision date: 04-09-2019 Issue date: 04-06-2017

Individual protection measures, such as personal protective equipment

Eye/face protection Safety glasses.

Skin protection

Hand protection Wear appropriate chemical resistant gloves.

Other Wear suitable protective clothing.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards Not available.

General hygiene considerations

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective

equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state Liquid. Form Liquid

Color Not available.

Odor Not available.

Odor threshold Not available.

pH Not available.

Melting point/freezing point Not available.

Initial boiling point and boiling Not available.

range

Flash point Not available.

Evaporation rate Not available.

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower

(%)

Not available.

Flammability limit - upper

(%)

Not available.

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

por pressure Not available.

Vapor pressureNot available.Vapor densityNot available.Relative densityNot available.

Solubility(ies)

Solubility (water) Not available.

Partition coefficient Not available.
(n-octanol/water)

Auto-ignition temperature Not available.

Decomposition temperature Not available.

Viscosity Not available.

Other information

Explosive properties Not explosive. **Oxidizing properties** Not oxidizing.

10. Stability and reactivity

ReactivityThe product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability Material is stable under normal conditions.

Possibility of hazardous Hazardous polymerization does not occur.

reactions

Conditions to avoid Contact with incompatible materials.

Incompatible materials Strong oxidizing agents.

Material name: Somnu Shield 6628 Version #: 02 Revision date: 04-09-2019 Issue date: 04-06-2017 No hazardous decomposition products are known.

11. Toxicological information

Information on toxicological effects

Acute toxicity

Components Species Test Results

FORMALDEHYDE (CAS 50-00-0)

Acute Inhalation

LC50 Rat 10500 mg/m³, 4 hours

Oral

LD50 Rat 640 mg/kg

Skin corrosion/irritation Rabbit: Corrosive. (Formaldehyde)

Based on available data, the classification criteria are not met.

Serious eye damage/eye

Rabbit: Corrosive. (Formaldehyde)

irritation Based on available data, the classification criteria are not met.

Respiratory or skin sensitization

ACGIH sensitization

FORMALDEHYDE (CAS 50-00-0)

Dermal sensitization

Respiratory sensitization

Respiratory sensitization Exposure to formaldehyde may cause respiratory sensitization in some individuals or aggravate

pre-existing asthmatic conditions.

Based on available data, the classification criteria are not met.

Skin sensitization May cause an allergic skin reaction. (Formaldehyde)

Based on available data, the classification criteria are not met.

Germ cell mutagenicity Result in genetic toxicity assays (in vitro and in vivo): Mixed results (Formaldehyde)

Based on available data, the classification criteria are not met.

Carcinogenicity May cause cancer. (Formaldehyde)

Based on available data, the classification criteria are not met.

IARC Monographs. Overall Evaluation of Carcinogenicity

FORMALDEHYDE (CAS 50-00-0) 1 Carcinogenic to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

FORMALDEHYDE (CAS 50-00-0) Cancer

US. National Toxicology Program (NTP) Report on Carcinogens

FORMALDEHYDE (CAS 50-00-0) Known To Be Human Carcinogen.

Reproductive toxicity No effects identified in animal studies. (Formaldehyde)

Based on available data, the classification criteria are not met.

Specific target organ toxicity -

single exposure

May cause respiratory irritation. (Formaldehyde)

Based on available data, the classification criteria are not met.

Specific target organ toxicity -

repeated exposure

No significant target organ toxicity reported. (Formaldehyde) Based on available data, the classification criteria are not met.

Aspiration hazard Not available.

12. Ecological information

Ecotoxicity

Components Species Test Results

FORMALDEHYDE (CAS 50-00-0)

Aquatic

Acute

Crustacea EC50 Water flea (Daphnia magna) 29 mg/l, 48 hours
Fish LC50 Fathead minnow (Pimephales promelas) 24.1 mg/l, 96 hours

Chronic

Fish NOEC Medaka, high-eyes (Oryzias latipes) > 48 mg/l, 28 days

Persistence and degradability No data is available on the degradability of this product.

Material name: Somnu Shield 6628 Version #: 02 Revision date: 04-09-2019 Issue date: 04-06-2017 SDS US

Bioaccumulative potential No data available.

Partition coefficient n-octanol / water (log Kow)

FORMALDEHYDE 0.35

Mobility in soilNo data available.Other adverse effectsNot available.

13. Disposal considerations

Disposal instructionsDispose of contents/container in accordance with local/regional/national/international regulations.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Not established.

Annex II of MARPOL 73/78 and

the IBC Code

15. Regulatory information

US federal regulationsThis product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard

Communication Standard, 29 CFR 1910.1200.

Toxic Substances Control Act (TSCA)

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

FORMALDEHYDE (CAS 50-00-0) Listed.

SARA 304 Emergency release notification

FORMALDEHYDE (CAS 50-00-0) 100 LBS

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

FORMALDEHYDE (CAS 50-00-0) Cancer

Skin sensitization

Respiratory sensitization

Eye irritation Skin irritation

respiratory tract irritation

Acute toxicity Flammability

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

FORMALDEHYDE (CAS 50-00-0)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

FORMALDEHYDE (CAS 50-00-0)

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

California Proposition 65

California Proposition 65 - CRT: Listed date/Carcinogenic substance

FORMALDEHYDE (CAS 50-00-0) Listed: January 1, 1988

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

FORMALDEHYDE (CAS 50-00-0)

Material name: Somnu Shield sps us

International Inventories

Country(s) or region Inventory name On inventory (yes/no)*

CanadaDomestic Substances List (DSL)NoCanadaNon-Domestic Substances List (NDSL)No

United States & Puerto Rico Toxic Substances Control Act (TSCA) Inventory No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

 Issue date
 04-06-2017

 Revision date
 04-09-2019

Version # 02

List of abbreviations TWA: Time Weighted Average

Disclaimer As of the date of issuance, we are providing available information relevant to the handling of this

material in the workplace. All information contained herein is offered with the good faith belief that it is accurate. THIS SAFETY DATA SHEET SHALL NOT BE DEEMED TO CREATE ANY WARRANTY OF ANY KIND (INCLUDING WARRANTY OF MERCHANT ABILITY OR FITNESS FOR A PARTICULAR PURPOSE). In the event of an adverse incident associated with this material, this safety data sheet is not intended to be a substitute for consultation with appropriately trained personnel. Nor is this safety data sheet intended to be a substitute for product literature

which may accompany the finished product.

For additional information contact:

Elanco Animal Health 0011+1-877-352-6261 0011+1-800-428-4441

Material name: Somnu Shield sps us

6628 Version #: 02 Revision date: 04-09-2019 Issue date: 04-06-2017