

Material Safety Data Sheet

1a. Identification of the substance/preparation

Product Code: Various

Product Description: Polyclonal antibody and conjugates

Specific uses: Research and analysis. See individual product data sheet

1b. Supplier

AbD Serotec/ MorphoSys UK Ltd.

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2. Composition/ Information on ingredients

This product contains polyclonal antibody of animal origin as specified on the product data sheet.

The polyclonal antibody is usually supplied in a salt buffer which may contain a chemical preservative. The polyclonal antibody may be conjugated. Bovine serum albumin (BSA) may be added to some polyclonal antibody products.

To use this material safety data sheet refer to the individual 'Product data sheet' to determine the exact composition of the product and concentration of the components and then refer to the relevant safety guidance below.

** See product data sheet for actual concentration of each product.

<u>Chemical name</u>	<u>Concentration</u> [%]	<u>EINECS/ELINCS</u>	<u>CAS no.</u>	<u>Classification*</u>
<u>Preservatives:</u> Benzamidine hydrochloride	0.01	1670-14-0	1670-14-0	Xi R36/37/38
Bronidox	0.02	250-001-7	3007-47-7	R22; R38 S36; S46
Epsilon-Aminocaproic acid (EACA)	0.1	200-469-3	60-32-2	Xi R36/37/38 S26; 36
Ethylenediamine-tetraacetic acid (EDTA)	3.7	205-358-3	139-33-3 (Anhydrous); 6381-92-6 (Dihydrate)	See data in this document
Gentamicin Sulphate	0.01	215-778-9	1405-41-0	R42/43 S45; 36/37/39; 22

Proclin 300 (Also known as Pro-Clean 400)	0.05 to 0.5**	None	None	R34; R43, C S26; 36/37/39; 45
Sodium Azide	0.09 to 0.1**	247-852-1	26628-22-8	R28, R32, R50/53, T+ ; N S1/2, S28, S45, S60, S61 See above for ProClin 300. and refer to data in this document
'Stabilzyme' HRP conjugate stabiliser containing:				
ProClin 300	20ppm	None	None	
Methylisothiazolone	0.02%	Data unavailable	Data unavailable	
Bromonitrodioxane	0.02%	Data unavailable	Data unavailable	
BUF052A HRP- StabilPLUS	50%	None	None	N/A
Thiomersal	0.01	200-210-4	54-64-8	R26/27/28; 33; 50/53; S13; 28; 36; 45; 60; 61 Classification *
<u>Chemical name</u>	<u>Concentration</u> [%]	<u>EINECS/ELINCS</u>	<u>CAS no.</u>	<u>Classification *</u>
<u>Conjugates:</u>				
Alkaline Phosphatase	Varies as it is conjugated	232-631-4	9001-78-9	R16; 36/38; S24/25
Allophycocyanin (APC)	Varies as it is conjugated	Data unavailable	Data unavailable	See data in this document
Biotin [EZ-Link™ Sulfo-NHS-LC- Biotin]	Varies as it is conjugated		127062-22-0	R61; 20/21; 36/37/38 Repr. Cat. 2; Xn; Xi; Xn
FITC [fluorescein isothiocyanate]	0.002	222-042-0	3326-32-7	R42/43 S22; 36/37; 45 Xn
Horseradish peroxidase (HRP)	Varies as it is conjugated	232-668-6	9003-99-0	Xn R42, S22
Pacific blue	Varies as it is conjugated	Not listed	Not listed	See data in this document
RPE-Cy5 (Idotricarbocyanine) dye	Varies as it is conjugated	Not listed	Not listed	See data in this document
RPE-Cy7	Varies as it is conjugated	Not listed	Not listed	See data in this document

R-Phycoerythrin (RPE)	Varies as it is conjugated	Data unavailable	Data unavailable	See data in this document
Tetramethylrhodamine isothiocyanate isomer R (TRITC)	Less than 3.0	229-808-3	107347-53-5	R40; 52/53 S36/37; 61
Texas red	Varies as it is conjugated	Not listed	Not listed	See data in this document

* For wording of safety phrases and expansion of abbreviations – see section 16.
Classification is by reference to the ‘Approved Supply List’ and with reference to the European Chemicals bureau EINECS/ELINCS data – see section 16.

3. Hazards identification

The following safety data sheet identifies the hazards related to the polyclonal antibody product and any additional substances in the product that are listed on the Product data sheet.

The hazard classification information above in section 2 relates to the chemical in its concentrated form. The ingredients are used in a diluted form in these monoclonal antibody products and therefore the risk of harm being caused by certain ingredients during handling of this product may be reduced compared with the undiluted ingredient. However, the hazards are still present and users should handle the product with care accordingly. This assessment should be used as a guide only and does not represent an all-inclusive study of the product.

This product contains material of animal origin (as specified on product data sheet) which is a biological material that could potentially contain a biological agent (e.g. virus). It should therefore be handled as a potential **biohazard**. As with all biological material, reduce direct handling to a minimum and wear appropriate protective clothing.

A **chemical hazard** may be associated with this product in accordance with the constituents stated in the individual product data sheet. Refer to safety guidance information on each constituent in this material safety data sheet.

Buffers - All constituents of the buffers in which monoclonal antibodies are supplied contain chemicals designated as non-regulated (NR) by the UN Hazard Classification unless otherwise stated on the product data sheet.

Bovine Serum Albumin is added to some purified monoclonal antibody preparations as a preservative/stabilising agent- usually at a level of 1% w/v.

Note: Bovine serum albumin used carries a North American certificate of origin.

Preservatives

Sodium Azide - Most monoclonal antibodies contain sodium azide as a preservative at a maximum level of 0.1% w/v.

In its concentrated form, sodium azide is highly toxic by inhalation, in contact with the skin and if swallowed. It may cause heritable genetic damage, it is readily absorbed through skin and the advice is to avoid contact with metals.

Although sodium azide is present in low levels in our products it is advisable to avoid ingestion or contact with skin and eyes, and to wear appropriate protective clothing such as protective gloves and long sleeve laboratory coat.

Thiomersal - Also referred to as Thimerosal (SIGMA) and Merthiolate (Eli Lilly and Co)

Some monoclonal antibody products (e.g. peroxidase conjugates) contain thiomersal as a preservative at a level of 0.01% w/v, see individual product data sheet.

Thiomersal is a toxic substance and an irritant to eyes and skin. Although this substance is present in low levels in our products it is advisable to avoid ingestion or contact with skin and eyes. Wear appropriate protective clothing.

Bronidox – Bronidox is suitable for use in surface cosmetics which do not remain in contact with the skin including child shampoos and cleansing creams and that the toxicological risk associated with this chemical is low. It is advised that direct contact of the concentrated chemical with the skin and mucous membrane should be avoided. However, the level present in AbD Serotec products is usually 0.02% w/v and thus our assessments require no additional special handling requirements for products containing this preservative.

'Stabilzyme' HRP Conjugate Stabiliser – Some peroxidase conjugates are supplied in the aqueous 'Stabilzyme' HRP Conjugate Stabiliser - Though complete toxicity information on Stabilzyme HRP Conjugate Stabiliser is not available, none of its components are known to be toxic or hazardous at use concentrations. Stabilzyme contains three mercury free preservatives ProClin 300 (20 ppm), methylisothiazolone (0.02%) and bromonitrodioxane (0.02%), all of which can produce adverse health effects in their concentrated form. For more specific toxicity data refer to supplier safety data on these components from Boehringer Mannheim Corporation and Rohm and Haas respectively.

BUF052A – Other peroxidase conjugates contain BUF052A, an HRP stabiliser based on a Tris buffer containing proprietary stabilizing components. HRP-StabilPLUS does not contain azide, mercury or other toxic components. Nor does it contain BSA or other bovine material. However, this product does contain a low concentration of rabbit antibodies.

ProClin 300 - is a corrosive substance when in concentrated form, which can cause eye damage, skin burns and allergic skin reaction. It may cause allergic skin reaction. See product data sheet for preservative concentration.

Although this substance is present in low levels in our products it is advisable to avoid ingestion or contact with skin and eyes. Wear appropriate protective clothing.

Benzamidinium (hydrochloride)

Some purified mouse polyclonal proteins contain Benzamidinium at a concentration of 0.01% (see individual data sheets). Benzamidinium is an irritant to the eyes (may cause chemical conjunctivitis), skin and can cause respiratory tract irritation (delayed pulmonary oedema). Benzamidinium can permeate the skin. The effects may be delayed chronically.

Epsilon-Aminocaproic acid (EACA)

Some purified mouse polyclonal proteins contain EACA at a concentration of 0.1% (see individual data sheets). EACA may cause eye, skin and respiratory tract irritation of the mucous membranes and upper respiratory tract.

In the concentrated form, EACA has shown to be harmful if inhaled or swallowed and may be harmful if absorbed through the skin. It has also been shown to alter behaviour in mice, and at chronic exposure it is considered a reproductive hazard in rats. Target organs: kidneys and blood.

Ethylenediaminetetraacetic acid (EDTA)

Some purified mouse polyclonal proteins contain EDTA at a concentration of 1mM (see individual data sheets). EDTA may be harmful by inhalation, ingestion and by skin absorption. It can also cause irritation to the eyes, skin, mucous membranes and upper respiratory tract.

Gentamicin Sulphate

In its concentrated form it may cause sensitisation and irritation of the eyes, skin, mucous membranes and upper respiratory tract. It is harmful if swallowed. Exposure can cause nausea, headache, and vomiting. Aminoglycosides are associated with significant toxicity to kidneys, ears and nerves. It causes photosensitivity in its concentrated form. It may cause an allergic respiratory reaction. Prolonged or repeated exposure may cause allergic reactions in sensitive individuals.

In long term use it is known to be a mutagen, teratogen and a reproductive hazard in rats.

Conjugates

Fluorescein Isothiocyanate (FITC)

Supplied as: Pale fluorescent green/yellow colour conjugate of monoclonal antibody and FITC in solution.

The safety data sheet for FITC sensitising agent by inhalation and skin contact, and an irritant to eyes, respiratory system and skin..

Fluorescein isothiocyanate is present in conjugated products at very low levels (less than 0.002% w/v maximum) at 1mg/ml antibody concentration, however, special care must be taken when handling sensitising and irritant substances to protect the routes of entry listed above by wearing appropriate personal protective equipment .e.g. Chemical resistant gloves. Wash thoroughly after handling and Avoid prolonged or repeated exposure.

R. Phycoerythrin (RPE)

Supplied as: Fluorescent pink colour conjugate in solution.

Phycobilliprotein extracted from seaweed. This protein is of biological plant origin and thus it must be considered that it has a potential of containing a biological agent. May be harmful by inhalation, ingestion, or skin absorption. Causes eye irritation. May cause skin irritation.

Alkaline Phosphatase

Supplied as: Pale yellow colour conjugate in solution.

Alkaline phosphatase is present in the product at very low levels, however in concentrated powder form, alkaline phosphatase has been listed as an irritant by skin contact, to the eyes, by ingestion and by inhalation. The substance may cause

allergic reactions in sensitive individuals. It is therefore advisable to be aware of this information and avoid contact of these conjugates with eyes and skin and wear protective disposable gloves.

Horseradish peroxidase

Supplied as: Pale brown colour conjugate in solution.

In pure concentrated powder form Horseradish peroxidase is sensitising by inhalation and can cause allergic reactions in sensitised individuals. Horseradish peroxidase is however, present in conjugated products at very low levels but it is advisable to be aware of this information and avoid creating aerosols of this product by excessive mixing or splashing.

Biotin

Supplied as: EZ-Link™ Sulfo-NHS-LC-Biotin.

In its concentrated pure form, Biotin is an irritant by inhalation, to the respiratory system and to the eyes. It is harmful by inhalation and in contact with the skin. It may cause harm to the unborn child.

Biotin is however, present in conjugated products at very low levels, but it is advisable to be aware of this information and prevent contact with the eyes.

APC (Allophycocyanin) conjugated products.

Supplied as: Lyophilised pale blue powder or blue conjugate solution.

APC is a substance isolated from a blue-green algae and is thus of biological origin. May be harmful by inhalation, ingestion, or skin absorption. Causes eye irritation. May cause skin irritation.

APC is present in the conjugated product at very low levels (less than 0.1%).

RPE-Cy5 (Idotricarbocyanine) dye conjugated products e.g. PE-Cy5

Supplied as: Straw coloured conjugate solution

The concentrated unconjugated Cy5 dye is a harmful irritant. Therefore, although RPE-Cy5 is present in the conjugated product at very low levels, it is advisable to be aware of this information and avoid contact with to skin, eyes and respiratory system, or by inhalation or ingestion.

Texas red™

Supplied as: pale red conjugate solution

Texas red is present in the conjugated product at very low levels.

In concentrated solid form, Texas red is toxic and a possible carcinogen, therefore although Texas red is present in the conjugated product at very low levels, it is advisable to be aware of this information, and avoid contact by inhalation, eyes, skin or ingestion and wear protective disposable gloves.

Tetramethylrhodamine isothiocyanate isomer R (TRITC)

TRITC has been classified with the following hazards: Limited evidence of a carcinogenic effect. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Please note that in its concentrated form, TRITC contains n-hexane (CAS#110-54-3) a suspected neurotoxin.

TRITC can cause skin irritation by skin contact and may be harmful if absorbed through the skin. Causes eye irritation. by contact. May be harmful if inhaled and it is irritating to the mucous membranes and upper respiratory tract. TRITC is harmful if swallowed. It may cause nervous system disturbances.

Chronic exposure it is a mutagen and may alter genetic material, plus it is a reproductive hazard in animals.

Pacific blue

Avoid temperatures over temperatures over 120 degrees Fahrenheit.

In the concentrated form, the liquid, aerosols and vapours of this product cause eye irritation. It causes skin irritation. Allergic reactions are possible. Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis.

Prolonged inhalation may be harmful.

This material may be harmful or fatal if swallowed. Irritating to mouth, throat and stomach.

RPE-Cy7

Refer to entry under RPE-Cy5

4. First-aid measures

The major routes of exposure must be considered in accordance with the use of the product. In general use, routes of exposure may be splashing on skin or into eyes, inhalation of product droplets to the lungs or mouth, and transfer of product by movement of contaminated hand to mouth, skin or eyes. Use of suitable controls and good laboratory practice should significantly reduce or prevent exposure. See section 8.

Symptoms

See individual component entries on this data sheet for symptoms for skin, eyes, lungs and mouth.

Action

Skin	In case of contact wash off skin thoroughly with soap and water. Remove contaminated clothing and wash before re-use. In severe cases obtain medical attention.
Eyes	Ensure adequate flushing of eye contamination for at least 15 minutes separating eyelids with fingers. If discomfort persists obtain medical attention
Inhalation	If inhaled, remove from exposure, rest and keep warm. In severe cases seek medical attention
Ingestion	If ingested, wash out mouth thoroughly with water and give plenty of water to drink. Obtain medical attention giving details of product constituents and any notable hazards.

5. Fire fighting measures

Suitable extinguishing media, special considerations and protective equipment required by trained fire-fighters has been considered for all additives.

Suitable extinguishing media: Dry chemical powder is generally suitable for all monoclonal antibody products. All the preservative and conjugate substances listed in

section 3 (apart from EDTA, and Horseradish peroxide) state that they emit toxic fumes under fire conditions in their concentrated form. There is no data available for RPE-Cy5, RPE-Cy7, Texas red, Pacific blue and Alexa dyes. In view of this information, some toxic fumes could be emitted from these products. Therefore the Protective equipment required by trained fire-fighters is as follows: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes

Bronidox

Products of Combustion: These products are carbon oxides (CO, CO₂), nitrogen oxides (NO, NO₂...), halogenated compounds, hydrogen and bromide gas.

Stabilzyme

Special considerations: Toxic fumes of carbon monoxide, carbon dioxide and nitrogen dioxides,

Biotin

Special considerations: Hazardous thermal decomposition products include carbon oxides, nitrogen oxides, sulphur oxides and some metallic oxides.

6. Accidental release measures

Personal precautions: Wear appropriate protective clothing such as protective laboratory coat and chemical resistant gloves

Environmental precautions: Please note below:

Thiomersal It is very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Tetramethylrhodamine isothiocyanate isomer R (TRITC) Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Many of the additives have not been fully tested or there is no information available. Please treat all with caution.

Method for clean up: Mop up with absorbent cloth and arrange removal by disposal company. Wash site of spillage thoroughly with water and detergent.

7. Handling and storage

Handling: For safe handling, see sections 4 and 8, and section 6 for environmental considerations

Storage: Store as directed on individual product data sheet

Use: For specific uses see section 1 and product data sheet

8. Exposure controls/personal protection

Workplace exposure limits:

Sodium azide

0.1 mg m⁻³ over 8 hours (long term exposure)

0.3 mg m⁻³ over 15 minutes (short term exposure)

Engineering measures: Special ventilation is not required for use of these products

Hand protection: Rubber or plastic when risk of contact. See individual additive entry for more details.

Eye protection: safety goggles or face shield where risk of exposure by splashing or mist formation may exist.

Respiratory protection: Not generally required under normal conditions of use. Assess requirement for this in accordance with any hazardous components contained in product and method of use.

Skin protection: Long sleeved laboratory coat

Environmental exposure controls: See notes under section 6.

9. Physical and chemical properties

Form: Polyclonal antibodies are supplied either as a liquid or lyophilised powder.

- i) Whole serum
- ii) Immunoglobulin fraction (Ig),
- iii) Immunoglobulin G fraction (IgG)
- iv) F(ab')₂ fraction

Colour: Unconjugated - colourless to pale yellow. See section 3 for colour of conjugates.

Odour: almost odourless

Solubility in water: miscible in all proportions

10. Stability and reactivity

Conditions/materials to be avoided:

Sodium azide is incompatible with strong acids, oxidisers and will decompose at 275 degrees centigrade. It can react with lead to form explosive metal azides, and it is therefore advisable to wash away any residues from lead plumbing by flushing through with water.

Hazardous decomposition products: See section 5

Stability: Stable

11. Toxicological information

Entries have been written, where available, under each health effect. Refer to the data for the individual chemical components contained in the product you are using.

Acute toxicity:

Sodium azide	May cause skin irritation May cause eye irritation May be irritating to mucous membranes and upper respiratory tract. May be fatal if inhaled, swallowed or absorbed through the skin. Exposure can cause nausea, headache and vomiting. Laboratory experiments in animals have shown sodium azide to produce a profound hypotensive effect, demyelination of myelinated nerve fibres; in the central nervous system testicular damage, blindness, attacks of rigidity and hepatic and cerebral effects
Thiomersal	Causes skin irritation. May be fatal if absorbed through skin. Causes eye irritation. May be fatal if inhaled. Material is irritating to mucous membranes and upper respiratory tract. May be fatal if swallowed.

Possible allergic reaction to dust if inhaled, ingested or in contact with the skin. hypersensitivity reactions manifested by erythema, papular or vesicular eruptions occur occasionally, allergic conjunctivitis has been reported. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

ProClin 300 Irritant to skin and eyes of rabbits

Benzamidine hydrochloride: Routes of entry: eye contact, inhalation and ingestion.
Toxicity in animals is not available.
It has been shown to be hazardous in human in the case of skin contact (irritant) of ingestion and of inhalation.
Benzamidine inhibits trypsin-like serine proteinases including thrombin, plasmin.
Slightly hazardous in the case of skin contact (permeator)

EACA May be harmful if absorbed through the skin, inhaled or swallowed. It has shown an effect on altered sleep time (including change in righting reflex). and dyspnea in rats and mice.
It has mild irritation effect to the eyes of rabbits
Exposure may cause itching, erythema, skin rash, diuresis, heartburn, nausea and diarrhoea. Other symptoms include orthostatic hypotension and bradycardia.
Causes irritation of the skin, eyes, mucous membranes and upper respiratory tract.
Target organs: kidneys and blood.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

EDTA Substance has low toxicity by ingestion. Large amounts may cause gastric upset due to osmotic imbalance through the sequestering of metal ions.

Gentamicin sulphate: In its concentrated form it has an adverse effect on hair, somnolence (general depressed activity), muscle contraction or spasticity, convulsions or effect on seizure threshold, altered sleep time (including change in righting reflex), dyspnea and respiratory stimulation in rats. .
It has shown the above effects and dyspnea, sensory change involving peripheral nerve, and ptosis in mice.
Exposure can cause nausea, headache, and vomiting.
Aminoglycosides are associated with significant nephrotoxicity and/or ototoxicity.
May cause irritation of the eyes, skin, mucous membranes and upper respiratory tract
May be harmful if absorbed through the skin, if inhaled and if swallowed.
Target organs: ears, kidneys and nerves.
At chronic exposure it is classed as a mutagen in rats.

	<p>It is also considered as teratogenic (chronic exposure) in rats, causing developmental abnormalities of the cardiovascular (circulatory) system and developmental abnormalities of the urogenital system. It is also a reproductive hazard in rats.</p> <p>To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.</p>
FITC	<p>May cause allergic respiratory reaction</p> <p>Lung irritation. Nausea, dizziness, and headache. Repeated exposure may cause asthma. Damage to the lungs.</p> <p>Exposure may cause:</p> <p>May cause skin irritation.</p> <p>May be harmful if absorbed through the skin.</p> <p>May cause eye irritation.</p> <p>Material may be irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.</p> <p>Ingestion: May be harmful if swallowed.</p> <p>Target organs: lungs and central nervous system.</p> <p>To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.</p>
Alkaline phosphatase	<p>Routes of entry: Absorbed through skin. Eye contact.</p> <p>Inhalation.</p> <p>Acute oral toxicity (LD50): 914 mg/kg (mouse) (calculated value for the mixture).</p> <p>It may be a possible mutagen but tests so far have been inconclusive.</p> <p>Skin: May cause skin irritation.</p> <p>Eyes: May cause eye irritation.</p> <p>Inhalation: Breathing in mist may cause respiratory tract irritation.</p>
R-Phycerythrin	<p>Harmful if swallowed; may be harmful if inhaled, may be harmful if absorbed through the skin; vapour or mist is irritating to the eyes, mucous membranes and upper respiratory tract; causes skin irritation.</p> <p>To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated</p>
Allophycocyanin	<p>Harmful if swallowed; may be harmful if inhaled, may be harmful if absorbed through the skin; vapour or mist is irritating to the eyes, mucous membranes and upper respiratory tract; causes skin irritation.</p> <p>To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated</p>
Biotin TRITC	<p>Classified as a possible teratogen for human</p> <p>Warning: contains n-hexane (CAS#110-54-3) a suspected neurotoxin.</p> <p>Skin Contact: Causes skin irritation.</p>

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: Causes eye irritation.

Inhalation: May be harmful if inhaled. Material is irritating to mucous membranes and upper respiratory tract.

Ingestion: Harmful if swallowed.

Target organs include cardiovascular system, blood, peripheral nervous system, testes, liver and pancreas. The heart is involved because methylene chloride is converted to carbon monoxide in the body, central nervous system because of possible dizziness, headache, loss of consciousness and death at high concentrations, kidneys and liver.

The toxicological properties have not been thoroughly investigated. May cause nervous system disturbances.

With chronic exposure, the National Cancer Institute has found clear evidence for carcinogenicity. This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

With chronic exposure, TRITC has been classed as a mutagen and may alter genetic material.

With chronic exposure, overexposure may cause reproductive disorder(s) based on tests with laboratory animals

Repeated dose toxicity: No data available.

Corrosive/irritation:

Sodium azide	May cause skin irritation May cause eye irritation May be irritating to mucous membranes and upper respiratory tract.
Thiomersal	Causes irritation skin, eyes, mucous membranes and upper respiratory tract.
ProClin 300	Can cause burns to the skin and eyes. Causes irritation in rabbit skin and eyes.
Biotin	Causes respiratory tract, eye and skin irritation
Alkaline phosphatase	May cause irritation to the skin, eyes, if inhaled and breathing in mist may cause respiratory tract irritation.
FITC	May cause irritation to the skin, eyes, mucous membranes and upper respiratory tract.
R-Phyocerythrin	Vapour or mist is irritating to the eyes, mucous membranes and upper respiratory tract; causes skin irritation. To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated
Allophycocyanin	Vapour or mist is irritating to the eyes, mucous membranes and upper respiratory tract; causes skin irritation.

	To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated
TRITC	Skin Contact: Causes skin irritation Eye Contact: Causes eye irritation
Benzamidine hydrochloride	This has been shown to be an irritant in it's concentrated form (see above).
EACA	Irritating to eyes, respiratory system and skin. It has mild irritation effect to the eyes of rabbits
Gentamicin sulphate	May cause irritation of the eyes, skin, mucous membranes and upper respiratory tract
Sensitisation:	
Thiomersal	Can cause sensitisation by inhalation and skin contact
ProClin 300	May cause sensitisation by skin contact .
FITC	Can cause sensitization by inhalation and skin contact.
Gentamicin sulphate	May cause sensitisation by inhalation and skin contact. Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals. Causes photosensitivity. Exposure to light can result in allergic reactions resulting in dermatologic lesions, which can vary from sunburn-like responses to oedematous, vesiculated lesions, or bullae. May cause allergic respiratory reaction
Mutagenicity:	
Alkaline phosphatase	May be a possible mutagen. It has been tested for mutagenicity, but so far tests have been inconclusive or test information has not been made available. (Ammonium sulphate)
Gentamicin sulphate	Considered a mutagen in rats (see above).
TRITC	With chronic exposure, TRITC has been classed as a mutagen and may alter genetic material.
Carcinogenicity:	
TRITC	May cause cancer although there is limited evidence of a carcinogenic effect. With chronic exposure, the National Cancer Institute has found clear evidence for carcinogenicity. This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.
Reproductive toxicity:	
Biotin	In its concentrated form has been classified as a category 2 toxin for reproduction
TRITC	Chronic exposure may cause reproductive disorder(s) based on tests with laboratory animals
Horseradish Peroxidase	To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated.
StabilZyme® HRP	Though complete toxicity information on StabilZyme® HRP Conjugate Stabilizer is not available, none of its components are known to be toxic or hazardous at use concentrations.

BUF052A	Proprietary formulation with no toxic components. Contains a low concentration of rabbit antibodies that could potentially contain a biological agent (e.g. virus) and should therefore be handled as a potential biohazard.
EACA	At chronic exposure it is considered a reproductive hazard in rats
Gentamicin sulphate	It is considered a reproductive hazard in rats
TRITC	With chronic exposure, overexposure may cause reproductive disorder(s) based on tests with laboratory animals

See also general information under section 3

12. Ecological information

Ecotoxicity:

ProClin 300	The preservative Proclin 300 contained in some monoclonal antibodies is toxic to fish and wildlife and therefore should not be discharged where treated effluent will leak into lakes, streams and ponds or public water.
Thiomersal	It is very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
TRITC	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Mobility: No data available

Persistence and degradability: No data available

Bioaccumulative potential: No data available

Other adverse effects: No data available

13. Disposal considerations

This product should be disposed of in accordance with local waste disposal authority guidelines and with respect to ecological and environmental effects. It may otherwise be passed to a chemical disposal company for disposal.

EWC number: 18-02-03

14. Transport information

Observe storage requirements.

15. Regulatory information

Contact AbD Serotec for further information

16. Other information

References

Internal product data and risk assessments.

Material safety data sheets from suppliers of component parts of product.

This data sheet is produced in accordance with Chemicals (Hazard Information and Packaging for Supply) Regulations 2002 (CHIP 2), and with reference to Control Of Substances Hazardous to Health Regulations 1999 (COSHH), Management of Health and Safety at Work Regulations (1999), and the Health and Safety at Work, etc Act 1974, and their updates and amendments.

Chemical safety information has also been obtained where possible from the European Chemical Bureau (ECB) in accordance with European Directive 67/548/EEC.

This document has been produced to provide health and safety information in accordance with the relevant regulations regarding any hazards (dangers) associated with the products that we supply to the customer, and any additional information that may be useful in preparation of risk assessments and safe procedures for handling by the user.

Training advice: It is recommended that handling of these products is restricted to staff trained in good laboratory practice, who are aware of the requirements of the COSHH regulations.

The information contained in this safety data sheet is believed to provide relevant information that will aid the safe handling and use of these products, however, it does not claim to be an all inclusive assessment and should be used as a guide only.

MorphoSys UK Ltd., shall not be held liable for any damage resulting from contact with this product.

Data sheet compilation reference: JCA/SWL

See footer for Issue number and Last revision date

C	Corrosive
N	Dangerous for the environment
T+	Very toxic
Repr. Cat. 2	Toxic for reproduction - categories 2
Xi	Irritant
Xn	Harmful
R16	Explosive when mixed with oxidising substances
R22	Harmful if swallowed
R28	Very toxic if swallowed
R32	Contact with acids liberates very toxic gas
R33	Danger of cumulative effects
R34	Causes burns
R38	Irritating to skin
R40	Limited evidence of carcinogenic effect
R42	May cause sensitisation by inhalation
R43	May cause sensitisation by skin contact
R61	May cause harm to the unborn child
R20/21	Harmful by inhalation and in contact with the skin
R26/27/28	Very toxic by inhalation, in contact with the skin and if swallowed
R36/38	Irritating to eyes and skin
R36/37/38	Irritating to eyes, respiratory system and skin
R42/43	May cause sensitisation by inhalation and skin contact
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R52/53	Harmful to aquatic organisms, may cause long term adverse effects in the aquatic environment

S13	Keep away from food, drink and animal feeding stuffs.
S22	Do not breathe dust.
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S28	After contact with skin, wash immediately with plenty... (specified by the manufacturer – see first aid.)
S36	Wear suitable protective clothing.
S45	In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible.)
S46	If swallowed, seek medical advice immediately and show this container or label.
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.
S1/2	Keep locked up and out of the reach of children.
S24/25	Avoid contact with skin and eyes
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection
S36/37	Wear suitable protective clothing and gloves

Abbreviations

Approx.: Approximately

EWC: European Waste Catalogue

EINECS: European Inventory of Existing Commercial Substances

ELINCS: European List of Notified Chemical Substances

CAS no: Chemicals Abstracts Service number

EEC Classification for transport: refer to www.HSE.gov.uk

CHIP 2: Chemicals (Hazard Information and Packaging for Supply) Regulations 1994

COSHH: Control Of Substances Hazardous to Health

w/v: weight/volume

LD50: A single dose of a material expected to kill 50 percent of a group of test animals. The LD50 dose is usually expressed as milligrams or grams of material per kilogram of animal body weight (mg/kg or g/kg). The material may be administered by mouth or applied to the skin.

IARC: International Agency for Research on Cancer

OSHA: Occupational Safety & Health Administration

ACGIH: American Conference of Governmental Industrial Hygienists is an organization of professional personnel in governmental agencies or educational institutions who are employed in occupational safety and health programs.

NTP: National Toxicology Program. The NTP publishes an Annual Report on Carcinogens.

EPA: U.S. Environmental Protection Agency.

ppm: parts per million

ASL: Approved Supply List. UK Health and Safety Commission document. (L142), ISBN 0-7176-6138-5.