Safety Data Sheet

As required by 29 CFR 1910.1200, (EC) N. º 1907/2006, (EC) N. º 1272/2008

Version: 8
Effective Date: 18.Jun.2001
Revision Date: 09.Jul.2015

Section1: Product and Company Identification

Product Name : Tysabri® Formulated Product

Chemical Name : Natalizumab

Intended Use : Biotherapeutic

Company : Biogen
250 Binney Street
Cambridge, MA 02142
USA
(617) 679-2000

Emergency Phone : CHEMTREC (800) 424-9300

Section 2: Hazards Identification

Hazard Class / Category : Not classified

Hazard Symbol : None

Hazard Warning : None

Hazard Statements : None

Precautionary Statements : None

Other Hazard Information

Note: TYSABRI (natalizumab) is a recombinant humanised IgG4 monoclonal antibody produced in murine myeloma cells. The final product is supplied as a prescription, concentrated solution for intravenous (IV) infusion. Tysabri® is not considered hazardous per the criteria under the OSHA Hazard Communication Standard (29 CFR 1910.1200) or (EC) No. 1907/2006 and (EC) No. 1272/2008. Although the health effects of occupational exposure to this product are not fully known or characterized, no adverse effects are anticipated as a result of occupational or incidental exposure.

Section 3: Composition / Information on Ingredients

Chemical Name	Concentration %	CAS No.	EC No.
Natalizumab	2	Not established	Not established
Polysorbate 80	0.02	9005-65-6	500-019-9
Sodium chloride	0.82	7647-14--5	231-598-3
Monosodium phosphate	4	7558-80-7	231-449-2
Water	Balance		

Common Name / Synonyms :BG00002, AN100226, recombinant humanized anti-α4 integrin antibody

Section 4: First Aid Measures

Eyes
Flush with water for 15 minutes. Seek medical attention if irritation occurs/persists.

Skin
Remove contaminated clothing. Wash exposed area with water for 15 minutes. Seek medical attention if irritation occurs/persists.

Inhalation
Move person to the fresh air. If not breathing give artificial respiration, treat symptomatically and supportively, get medical attention.

Ingestion
Rinse mouth with water and seek medical attention, if required.

Section 5: Fire Fighting Measures

Suitable Extinguishing Media
Use water spray, carbon dioxide, ABC dry chemical or foam.

Unsuitable Extinguishing Media / Unusual Risks
None Known

Special Fire-Fighting Equipment for Fire-Fighters
No data available

Section 6: Accidental Release Measures

Personal Precautions and Protection
Wear impervious gloves, lab coat and safety glasses.

Environmental Precautions
None. Material is not anticipated to cause any issues to the environment.

Clean Up Procedures
Place clean up debris in appropriate containers and dispose of in accordance with local, state and federal laws regarding waste management.

Section 7: Storage and Handling

Handling
Avoid direct contact.

Storage
Do not shake or freeze. Following reconstitution, product should be used within 8 hours and stored at 2-8^{o}C.

Specific Uses
Prescription biotherapeutic drug; use as directed by a licensed health care provider.

Section 8: Exposure Controls / Personal Protection

Exposure Routes
Inhalation, skin and eye contact; accidental ingestion or needlestick.

Occupational Exposure Limits: Occupational Exposure Band OEB1 (>500 µg/m3) as an 8-hour time weighted average.

Other PPE
Wear impervious gloves, lab coat, and safety glasses to prevent skin and eye contact.

Section 9: Physical and Chemical Properties

Molecular weight	: Not applicable for mixture
pH	: 6.1
Boiling point	: No data available
Melting point	: No data available
Vapor Pressure	: No data available
Solubility (water)	: No data available
Solubility (other solvents)	: No data available
Evaporation rate	: No data available
Vapor density	: No data available
Specific gravity	: No data available
% volatile	: No data available
Partition coefficient	: No data available

Physical form: liquid
Odor: None
Appearance/Color: colorless, clear to slightly opalescent

Section 10: Stability and Reactivity

Stability: Stable

Incompatible materials / conditions
No data available

Hazardous decomposition products
None known

Hazardous polymerization
Will not occur

Section 11: Toxicological Information

The chemical, physical and toxicological properties of this product have not been fully characterized. Avoid direct contact.

Acute Toxicity

Acute and/or subchronic toxicity studies were performed in mice, guinea pigs, and cynomolgus monkeys at maximum doses of 250, 127, and 30 mg/kg, respectively. No treatment-related effects were seen in mice or guinea pigs.

Signs and Symptoms of Exposure
No effects in mice or guinea pigs. An antibody response to the natalizumab was seen in monkeys.

Effects by inhalation, dermal contact, ingestion or eye contact
No Data Available

Sensitization
No Data Available

Chronic Toxicity
In a 6-month multiple dose study in cynomolgus monkeys, natalizumab was administered IV to male and female animals at 3, 10, 30, or 60 mg/kg/week for 26 weeks. All animals treated with 3 and 10 mg/kg/week had an anti-natalizumab antibody response. Approximately 50% of the animals in the 30 and 60 mg/kg/week groups had detectable antibodies to natalizumab. The only pharmacologic effect was an increase in white blood cell count

Carcinogenicity
Natalizumab was not tested for carcinogenicity. Natalizumab does not enhance the in vitro or in vivo growth of α4+ human tumor cell lines.

Genotoxicity
Natalizumab was negative in the L5178Y tyrosine kinase (TK) ± mouse lymphoma forward mutation assay and did not induce chromosomal aberrations in cultured human whole blood lymphocytes in both the absence and presence of metabolic activation.

Reproductive Toxicity
Fertility studies in guinea pigs demonstrated no treatment-related effects on male fertility at IV doses up to 30 mg/kg every other day. Female guinea pigs showed a reduction in fertility in 1 of 2 studies at an IV dose of 30 mg/kg every other day. Doses below 30 mg/kg did not result in a reduction in female fertility.

Teratogenicity
Embryo/fetal development studies in guinea pigs and cynomolgus monkeys at IV doses up to 30 mg/kg every other day did not reveal any teratogenic effects. There was an increased incidence of abortions in natalizumab-treated groups in 1 primate study (13% for controls versus 29% natalizumab-treated animals); however, no increased incidence was observed in 4 other studies that evaluated this endpoint in the 2 species. Therefore, although a treatment-related effect on abortion cannot be ruled out, it is unlikely that natalizumab treatment significantly increases the risk of abortion.

Target Organs
No target organ toxicity data was available following occupationally relevant routes of administration.

Section 12: Ecological Information

Ecotoxicity: No Data Available

Mobility: No Data Available

Environmental persistence: No Data Available

Bioaccumulation: No Data Available

Section 13: Disposal Considerations

Product Disposal
Tysabri® is not a RCRA hazardous waste as defined by US EPA.

Packaging Disposal
Dispose of in accordance with applicable federal, state and local regulations.

Other regulatory information
None

Section 14: Transport Information

ICAO / IATA
Proper Shipping Name, Class, UN Number, Packing Group
Non Hazardous

RID / ADR / DOT
Proper Shipping Name, Class, UN Number, Packing Group
Non Hazardous

IMDG
Proper Shipping Name, Class, UN Number, Packing Group
Non Hazardous

Section 15: Regulatory Information

OSHA Classification : None

R Phrases : None

S Phrases : None

Section 16: Other Information

DISCLAIMER: The above mentioned data are based on Biogen's best present knowledge of this product. Biogen cannot guarantee completeness or accuracy of the information contained herein, and disclaims all liability for incompleteness or inaccuracy of the information and for any claims of damages arising from handling or use of this product.

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