In accordance with Globally Harmonized System of Classification and Labelling of Chemicals (GHS)- Chapter 1.5 and Annex 4

SAFETY DATA SHEET

Product: DEMARCATION AND SIGNALING PAINT BLUE

Revision: 02	Date: 11/10/2021	Pages: 1/10

1 - IDENTIFICATION

GHS Product identifier:	DEMARCATION AND SIGNALING PAINT BLUE
Other means of identification:	041421-00
Recomended use of the chemical:	DEMARKING INK.
Specific restrictions on use:	There are not known restrictions on use of the product.
Suplier`s details:	ANJO QUIMICA DO BRASIL LTDA
Address:	Acesso Estadual Rio Maina, nº 1165, Bairro Vila Macarini CEP: 88818-800, Criciúma - SC - BR
Phone number(s):	(48) 34618000 (48) 34618049
Emergency phone number:	CIATox/SC (Centro de Informação e Assistência Toxicológica de Santa Catarina) 08006435252

2 - HAZARD IDENTIFICATION

Classification of the substance or mixture:	Flammable Liquids - Category 2 Skin Corrosion/Irritation - Category 2 Reproductive Toxicity - Category 2 Specific Target Organ Toxicity –Single Exposure - Category 3 - Narcotic Specific Target Organ Toxicity –Repeated Exposure - Category 2 Hazardous to the Aquatic Environment - Acute Hazard - Category 2
Classification system adopted:	Globally Harmonized System of Classification and Labeling of Chemicals (GHS), United Nations.

GHS label elements, including precautionary statements

Pictograms:

Signal word:	DANGER
Hazard statement(s):	H225 Highly flammable liquid and vapour. H315 Causes skin irritation. H336 May cause drowsiness or dizziness. H361 Suspected of damaging fertility or the unborn child. H373 May cause damage to the central nervous system through prolonged or repeated exposure. H401 Toxic to aquatic life.
Precautionary statement(s):	**PREVENTION:** P203 Obtain, read and follow all safety instructions before use. P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P233 Keep container tightly closed. P240 Ground and bond container and receiving equipment.

P241 Use explosion-proof electrical, ventilating and lighting equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 Wash hands thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves, protective clothing, eye protection, face protection and hearing protection.

RESPONSE TO EMERGENCY:
P302 + P352 IF ON SKIN: Wash with plenty of water.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P318 IF exposed or concerned, get medical advice.
P319 Get medical help if you feel unwell.
P321 Specific treatment.
P332 + P317 If skin irritation occurs: Get medical help.
P362 + P364 Take off contaminated clothing. And wash it before reuse.
P370 + P378 In case of fire: Use carbon dioxide (CO_2), foam, water mist and powder to extinguish.

STORAGE:
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

DISPOSITION:
P501 Dispose of contents and container in accordance with local regulations.

Other hazards which do not result in classification:	The product has no other hazards.

3 - COMPOSITION/INFORMATION ON INGREDIENTS

MIXTURE

Components contributing to the hazard:	DOLOMITA 325 (CAS Not applicable): 16.30 - 48.90 % [1]; Toluene (CAS 108-88-3): 15.80 - 47.40 %; Caulim (CAS 471-34-1): 3.00 - 9.00 % [1]; Light naphtha (CAS 64741-66-8): 1.25 - 3.75 %; Product that does not contribute to the danger (CAS Not applicable): 0.79 - 2.36 % [1]; Titanium dioxide (CAS 13463-67-7): 0.75 - 2.25 % [2]; Ethylglycol acetate (CAS 111-15-9): 0.28 - 0.83 %; Pigment blue 15:3 (CAS 147-14-8): 0.13 - 0.38 % [1]; 2-phenoxyethyl esters (CAS 91001-64-8): 0.05 - 0.15 % [3]; Polyurethane (CAS Not applicable): 0.03 - 0.09 % [3]; 2 - methoxy metiletila 1 (CAS 108-65-6): 0.03 - 0.09 % [1];

	Sílica cristalina (CAS 14808-60-7): 0.01 - 0.04 % [4]; 2-methoxypropyl acetate (CAS 70657-70-4): 0.0001 - 0.0004 % [3]; Anjo test (CAS Not applicable): 0.0 - 0.0 % [3]. [1]Ingredient not classified as dangerous by the classification system used. [2]Ingredient not classified as hazardous by the Classification System used, but has an established occupational exposure limit, according to section 8. [3]The ingredient does not contribute to the hazard. [4]The hazards arising from the inhalation of this ingredient are not parameters for the classification of the mixture, since, both the physico-chemical characteristics and the adequate understanding of specialists, when a solid ingredient in the form of powder is diluted in a liquid mixture, it's not biologically available to cause its harms.

4 - FIRST-AID MEASURES

Routes of exposure

Inhalation:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If the victim feels unwell, contact a TOXICOLOGICAL INFORMATION CENTER or a doctor. Bring this SDS.
Skin:	Wash exposed skin with sufficient amount of water to remove the material. Take off and isolate contaminated clothing and shoes. In case of skin irritation: contact a doctor. Bring this SDS.
Eye:	Wash carefully with water for several minutes. In case of use of contact lenses, remove them, if possible. Keep washing. If eyes irritation continues: Contact a doctor. Bring this SDS.
Ingestion:	Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse the victims mouth with water in abundance. If the victim feels unwell, contact a TOXICOLOGICAL INFORMATION CENTER or a doctor. Bring this SDS.
Most important symptoms/effects, acute and delayed:	Causes skin irritation with redness, pain and dryness. May cause drowsiness or dizziness, may cause dizziness and nausea. May cause damage to the central nervous system through prolonged or repeated exposure, may cause anorexia, auditory dysfunction, difficulty in concentrating, sleep disorder and visual disturbance.
Indication of immediate medical attention and special treatment needed, if necessary:	Avoid contact with the product to help the victim. Keep victim warm and quiet. Symptomatic treatment should comprise mainly supportive measures such as correction of electrolyte disturbances, metabolic, and respiratory support. In case of skin contact do not rub the affected area.

5 - FIRE-FIGHTING MEASURES

Extinguishing Media:	Appropriate: carbon dioxide (CO_2), foam, water mist and powder. Inappropriate: water directly onto the burning product.
Specific hazards arising from the chemical:	The combustion of the chemical containers may form toxic and irritant gases such as carbon monoxide and carbon dioxide. Very dangerous when exposed to excessive heat or other sources of ignition such as sparks, open flames or flames of matches and cigarettes, welding operations, pilot lights and electric motors. Can accumulate static charge by flow or agitation. Vapors from heated liquid can be ignited by static discharge. Vapors are heavier than air and tend to accumulate in low or confined areas, such as sewers and basements. Can travel

	great distances causing retrogression of the flame or new fires both in open environments in as confined ones. Containers may explode if heated.
Special protective actions for fire-fighters:	Use self-contained breathing apparatus (SCBA) operated in positive pressure mode and complete protective clothing. Containers and tanks involved in the fire should be cooled with water mist.

6 - ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel:	Prevent sparks or flames. Do not smoke. Do not touch damaged containers or spilled material without the use of appropriate clothing. Avoid exposure to the product. Stay in a safe place, with wind from behind. Use personal protective equipment as described in Section 8.
For emergency responders:	Wear complete PPE with safety glasses, safety gloves, suitable protective clothing and closed shoes. In case of leakage, where exposure is high, it is recommended to use a suitable respiratory protection mask.
Environmental precautions:	Avoid that the spilled material reaches waterways or sewage system.
Method and materials for containment and cleaning up:	Use water mist or vapor suppressing foam to reduce the dispersion of vapors. Use natural barriers or spill containment. Collect spilled material and put it into containers. Adsorb the remaining product with dried sand, vermiculite or any other inert material. Put the adsorbed material in appropriate containers and remove them to a safe place. Use tools that do not cause sparks to collect absorbed material. For final destination, proceed pursuant to Section 13 of this SDS.

7 - HANDLING AND STORAGE

Precautions for safe handling

Safe handling of the substance or mixture:	Handle in a well ventilated area or with general system of ventilation/local exhaust. Avoid vapors and mists formation. Avoid exposure to the chemical, since the effects may not be felt immediately.
General hygiene:	Wash hands and face thoroughly after handling and before eating, drinking, smoking or going to the bathroom. Contaminated clothing should be changed and washed before reuse. Remove clothing and protective equipment contaminated before entering eating areas.

Conditions for safe storage, including any incompatibilities

Technical measures for prevention of fire and explosion:	Keep away from heat, sparks, open flames and hot surfaces. - Do not smoke. Keep container tightly closed. Ground the container vessel and the receiver of the product during transfers. Only use anti-sparking tools. Avoid the accumulation of electrostatic charges. Use electrical equipment, ventilation and lighting explosion proof. Use personal protective equipment as described in Section 8.
Adequate conditions:	Store in a well ventilated place, away from sunlight. Keep container closed. Keep away from high temperatures and ignition sources.
Packaging compatibilities:	Similar to the original packaging.
Inadequate packaging materials:	There are not known unsuitable material of the product.

8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters	
Occupational exposure limit:	The values below apply to workplaces. - Sílica cristalina: OSHA - PEL - TWA: (CFR1); NIOSH - REL - TWA: 0.05 mg/m³ (Ca); (AA); ACGIH - TLV - TWA: 0.025 mg/m³ (R). - Ethylglycol acetate: OSHA - PEL - TWA: 100 ppm; 540 mg/m³; NIOSH - REL - TWA: 0.5 ppm; ACGIH - TLV - TWA: 5 ppm. - Titanium dioxide: OSHA - PEL - TWA: 15 mg/m³; NIOSH - REL - TWA: 2.4 mg/m³ (fine); 0.3 mg/m³ (ultrafine); (Ca) (ultrafine particles); (AA); (B63); ACGIH - TLV - TWA: 10 mg/m³. - Toluene: OSHA - PEL - TWA: (Z2); NIOSH - REL - TWA: 375 mg/m³; 100 ppm; NIOSH - REL - STEL: 560 mg/m³; 150 ppm; ACGIH - TLV - TWA: 20 ppm. R: Respirable particulate matter; Ca: Potential occupational carcinogen. AA: See NIOSH REL Appendix A; CFR1: See CFR 1910.1053. B63: See NIOSH Intelligence Bulletin 63; Z2: See NIOSH REL Annotated Z-2.
Biological limit:	- Ethylglycol acetate: ACGIH - BEI: Determinant: 2-Ethoxyacetic acid in urine. Sampling Time: End of shift at end of workweek. Index: 100.00 mg/g creatinine. - Toluene: ACGIH - BEI: Determinant: o-Cresol in urine. Sampling Time: End of shift. Index: 0.30 mg/g creatinine. B; Determinant: Toluene in blood. Sampling Time: Prior to last shift of workweek. Index: 0.02 mg/L; Determinant: Toluene in urine. Sampling Time: End of shift. Index: 0.03 mg/L. B: The determinant may be present in biological specimens collected from subjects who have not been occupationally exposed, at a concentration which could affect the interpretation of the results. Such background concentrations are incorporated in the BEI value.
Other limits and values:	Not established.
Appropriate engineering controls:	Promote mechanical ventilation and a direct exhaust system to the outside environment. These measures help to reduce product exposure. Maintain atmospheric concentrations of the constituents of the product below occupational exposure limits

	indicated.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection:	Safety glasses.
Skin protection:	Closed shoes and suitable protective clothing. Appropriate protective gloves.
Respiratory protection:	A risk assessment should be performed for proper definition of respiratory protection, in view of the product use conditions.
Thermal hazards:	It does not present thermal hazards.

9 - PHYSICAL AND CHEMICAL PROPERTIES

Aspect:	Liquid.
Color:	Blue.
Odour:	Characteristic.
Melting point/freezing point:	Not available.
Boiling point or initial boiling point and boiling range:	110 °C (230 °F) at 760 mmHg.
Flammability:	Flammable.
Lower and upper explosion limit/flammability limit:	Not available.
Flash point:	4.4 °C (39.92 °F) - Closed cup.
Auto-ignition temperature:	Not available.
Decomposition temperature:	Not available.
pH:	Not available.
Kinematic viscosity:	Dynamic: 87.5.
Solubility(ies):	Water immiscible.
Partition coeficient n-octanol/water (log value):	Not available.
Vapour pressure:	Not available.
Relative vapour density:	Not available.
Density and/or relative density:	Not available.
Particle	Not applicable.

characteristics:	
Other information:	Absolute density: 1.35 g/cm³.

10 - STABILITY AND REACTIVITY

Reactivity:	Reactivity is not to be expected under normal conditions of temperature and pressure
Stability:	Product is stable under normal conditions of temperature and pressure.
Possibility of hazardous reactions:	Ethylbenzene: Reacts violently with oxidizing materials. Xylene: Risk of explosion when in contact with nitric acid and uranium hexafluoride. It can react dangerously with oxidizing agents and sulfuric acid. Isobutyl alcohol: May ignite in contact with chromium trioxide. It can react with aluminum at high temperatures, forming hydrogen (explosive) gas. Toluene: Reacts violently with fuming sulfuric acid, nitric acid, silver, perchlorate, nitrogen dioxide, nonmetallic halides, acetic acid, uranium hexafluoride, and organic nitrogen compounds at risk of explosion. Ethanol: May form explosive mixtures with air. Risk of explosion in contact with alkali metals, alkali oxides and nitric acid.
Conditions to avoid:	Elevated temperatures. Ignition sources. Contact with incompatible materials.
Incompatible material:	2,4-dinitrotoluene, Acids, Alkaline metals, Aluminum, Ammonia, Chromium trioxide, Halogen, Nitric acid, Nitrogen dioxide, Nonmetallic halides, Organic nitrogen compounds, Oxidizing Agents, Oxygen, Perchlorates, Silver, Sulphuric acid and Uranium hexafluoride.
Hazardous decomposition products:	There are no known hazardous decomposition products.

11 - TOXICOLOGICAL INFORMATION

Acute toxicity:	It is not expected that the product presents acute toxicity.
Skin corrosion/irritation:	Causes skin irritation with redness, pain and dryness.
Serious eye damage/irritation:	It is not expected that the product causes eye irritation.
Respiratory or skin sensitization:	It is not expected that the product presents respiratory or skin sensitization.
Germ cell mutagenicity:	It is not expected that the product presents germ cell mutagenicity.
Carcinogenicity:	It is not expected that the product presents carcinogenicity.
Reproductive toxicity:	Suspected of damaging fertility or the unborn child.
STOT - Single exposure:	May cause drowsiness or dizziness, may cause dizziness and nausea.
STOT - Repeated exposure:	May cause damage to the central nervous system through prolonged or repeated exposure, may cause anorexia, auditory dysfunction, difficulty in concentrating, sleep disorder and visual disturbance.
Aspiration Hazard:	It is not expected that the product presents aspiration hazard.

12 - ECOLOGICAL INFORMATION

Toxicity:	Toxic to aquatic life. Information regarding to : - Toluene: LC_{50} (*Amphiprion ocellaris*, 96h): > 100 mg/L; EC_{50} (*Ceriodaphnia dubia*, 48h): > 100 mg/L. - Light naphtha: EC_{50} (*Daphnia magna*, 48h): 4.5 mg/L; LC_{50} (*Amphiprion ocellaris*, 96h): 4.5 - 23 mg/L.
Persistence and degradability:	Due to the lack of data, it is expected that the product presents persistence and it is not considered readily biodegradable.
Bioaccumulative potential:	Presents low bioacumulative potencial in aquatic organisms. Information regarding to : - Toluene: log K_{ow}: 2.73.
Mobility in soil:	Not determined.
Other adverse effects:	There are not known other environmental effects for this product.

13 - DISPOSAL CONSIDERATIONS

Disposal methods

Must be disposed of as hazardous waste in compliance with local regulations. The treatment and disposal should be evaluated for each specific product.
Keep the product remains in its original and properly closed containers. Disposal should be performed as established for the product.

14 - TRANSPORT INFORMATION

Road:	UN - United Nations: Model Regulations: • Recommendations on the Transport of Dangerous Goods.
UN number:	1263
Proper shipping name:	PAINT RELATED MATERIAL
Primary risk class or division:	3
Subsidiary risk class or division:	NA
Packing group:	III
Railway regulations:	COTIF - Convention concerning International Carriage by Rail: • Appendix C: RID - Regulations concerning the International Carriage of Dangerous Goods by Rail
UN number:	1263
Sea:	IMO - International Maritime Organization: • IMDG Code - International Maritime Dangerous Goods Code.
UN number:	1263

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Product: DEMARCATION AND SIGNALING PAINT BLUE

Proper shipping name:	PAINT RELATED MATERIAL
Primary risk class or division:	3
Subsidiary risk class or division:	NA
Packing group:	III
EmS:	F-E,S-E
Environmental hazards:	The product is not considered a marine pollutant for transportation.
Air:	IATA - International Air Transport Association: • DGR - Dangerous Goods Regulation.
UN number:	1263
Proper shipping name:	PAINT RELATED MATERIAL
Primary risk class or division:	3
Subsidiary risk class or division:	NA
Packing group:	III
Special precautions for user:	Not applicable

15 - REGULATORY INFORMATION

Convention concerning Safety in the use of Chemicals at Work (Convention 170) - International Labour Organization, 1990.

16 - OTHER INFORMATION

This SDS was prepared based on current knowledge about the proper product handling and under normal conditions of use, in accordance with the application specified on the packaging. Any other use of the product involving their combination with other materials, and use various forms of those indicated, are the responsibility of the user. Warns that the handling of any chemical substance requires the prior knowledge of its hazards for the user. In the workplace it is for the user company's product promotes training of its collaborators about the possible risks arising from exposure to the chemical.

Elaborated November 2021.
Change Control:

Version	Elaboration	Changes
02	11/10/2021	Change in composition. Change in section: 1, 2, 4, 8, 11, 12, 13, 14, 15 and 16.

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Abbreviations:
ACGIH - American Conference of Governmental Industrial Hygienists;
BEI - Biological Exposure Index;
CAS - Chemical Abstracts Service;
EC - European Community;
EC_{50} - Effective Concentration 50%;
EEC - European Economic Community;
K_{ow}- Octanol/Water partition coefficient;
LC_{50} - Lethal Concentration 50%;
NIOSH - National Institute for Occupational Safety and Health;
OSHA - Occupational Safety & Health Administration;
PEL - Permissible Exposure Limit;
REL - Recommended Exposure Limit;
STEL - Short Term Exposure Limit;
TLV - Threshold Limit Value;
TWA - Time Weighted Average;
UN - United Nations.

Bibliographic references:

GHS - GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS. 8th rev. ed. New York: United Nations, 2019.

ACGIH - AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIALS HYGIENISTS. TLVs® and BEIs®: Based on the Documentation of the Threshold Limit Values (TLVs®) for Chemical Substances and Physical Agents & Biological Exposure Indices (BEIs®). Cincinnati-USA, 2020.

REACH - REGISTRATION, EVALUATION, AUTHORIZATION AND RESTRICTION OF CHEMICALS. Commission Regulation (EC) No 1272/2008 of December 2008 amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals. Disponível em: < http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:353:0001:1355:en:PDF >. Access in: Nov. 2021.