

(2R)-2-Aminobutanoic acid Safety Data Sheet 41571X5 according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations Date of issue: 06/23/2016 Version: 1.0

| SECTION 1: Identification | |
|--|--|
| SECTION 1. Identification | |
| 1.1. Identification | |
| Product form | : Substance |
| Substance name | : (2R)-2-Aminobutanoic acid |
| CAS No | : 2623-91-8 |
| Product code | : 4157-1-X5 |
| Formula | : C4H9NO2 |
| Other means of identification | : MFCD00064414 |
| | |
| | bstance or mixture and uses advised against |
| Use of the substance/mixture | : Laboratory chemicals Manufacture of substances Scientific research and development |
| 1.3. Details of the supplier of the safe | ty data sheet |
| SynQuest Laboratories, Inc. | |
| P.O. Box 309 | |
| Alachua, FL 32615 - United States of America T (386) 462-0788 - F (386) 462-7097 | l |
| info@synquestlabs.com - www.synquestlabs. | com |
| 1.4. Emergency telephone number | |
| Emergency number | : (844) 523-4086 (3E Company - Account 10069) |
| 3 • • • • • • • • • • | , , , , , , , , , , , , , , , , , , , |
| SECTION 2: Hazard(s) identification | n |
| 2.1. Classification of the substance of | r mixture |
| Classification (CHS US) | |
| Classification (GHS-US) | |
| Skin Irrit. 2 H315 - Causes skin irritation Eye Irrit. 2A H319 - Causes serious eye irr | itation |
| STOT SE 3 H335 - May cause respiratory | |
| Full text of H-phrases: see section 16 | |
| | |
| 2.2. Label elements | |
| GHS-US labeling | |
| | |
| Hazard pictograms (GHS-US) | |
| | GHS07 |
| Hazard pictograms (GHS-US) Signal word (GHS-US) | : GHS07 : Warning |
| | |
| Signal word (GHS-US) Hazard statements (GHS-US) | : Warning : H315 - Causes skin irritation H319 - Causes serious eye irritation H335 - May cause respiratory irritation |
| Signal word (GHS-US) | Warning H315 - Causes skin irritation H319 - Causes serious eye irritation H335 - May cause respiratory irritation P261 - Avoid breathing dust, mist, spray |
| Signal word (GHS-US) Hazard statements (GHS-US) | Warning H315 - Causes skin irritation H319 - Causes serious eye irritation H335 - May cause respiratory irritation P261 - Avoid breathing dust, mist, spray P264 - Wash skin thoroughly after handling P271 - Use only outdoors or in a well-ventilated area |
| Signal word (GHS-US) Hazard statements (GHS-US) | Warning H315 - Causes skin irritation H319 - Causes serious eye irritation H335 - May cause respiratory irritation P261 - Avoid breathing dust, mist, spray P264 - Wash skin thoroughly after handling P271 - Use only outdoors or in a well-ventilated area P280 - Wear protective gloves/protective clothing/eye protection/face protection |
| Signal word (GHS-US) Hazard statements (GHS-US) | Warning H315 - Causes skin irritation H319 - Causes serious eye irritation H335 - May cause respiratory irritation P261 - Avoid breathing dust, mist, spray P264 - Wash skin thoroughly after handling P271 - Use only outdoors or in a well-ventilated area P280 - Wear protective gloves/protective clothing/eye protection/face protection P302+P352 - If on skin: Wash with plenty of soap and water |
| Signal word (GHS-US) Hazard statements (GHS-US) | Warning H315 - Causes skin irritation H319 - Causes serious eye irritation H335 - May cause respiratory irritation P261 - Avoid breathing dust, mist, spray P264 - Wash skin thoroughly after handling P271 - Use only outdoors or in a well-ventilated area P280 - Wear protective gloves/protective clothing/eye protection/face protection P302+P352 - If on skin: Wash with plenty of soap and water P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing |
| Signal word (GHS-US) Hazard statements (GHS-US) | Warning H315 - Causes skin irritation H319 - Causes serious eye irritation H335 - May cause respiratory irritation P261 - Avoid breathing dust, mist, spray P264 - Wash skin thoroughly after handling P271 - Use only outdoors or in a well-ventilated area P280 - Wear protective gloves/protective clothing/eye protection/face protection P302+P352 - If on skin: Wash with plenty of soap and water |
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| Signal word (GHS-US) Hazard statements (GHS-US) | Warning H315 - Causes skin irritation H319 - Causes serious eye irritation H335 - May cause respiratory irritation P261 - Avoid breathing dust, mist, spray P264 - Wash skin thoroughly after handling P271 - Use only outdoors or in a well-ventilated area P280 - Wear protective gloves/protective clothing/eye protection/face protection P302+P352 - If on skin: Wash with plenty of soap and water P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing P312 - Call a POISON CENTER or doctor/physician if you feel unwell P321 - Specific treatment (see supplemental first aid instructions on this label) |
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| Signal word (GHS-US) Hazard statements (GHS-US) | Warning H315 - Causes skin irritation H319 - Causes serious eye irritation H335 - May cause respiratory irritation P261 - Avoid breathing dust, mist, spray P264 - Wash skin thoroughly after handling P271 - Use only outdoors or in a well-ventilated area P280 - Wear protective gloves/protective clothing/eye protection/face protection P302+P352 - If on skin: Wash with plenty of soap and water P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing P312 - Call a POISON CENTER or doctor/physician if you feel unwell P321 - Specific treatment (see supplemental first aid instructions on this label) P332+P313 - If skin irritation occurs: Get medical advice/attention |
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| Signal word (GHS-US) Hazard statements (GHS-US) | Warning H315 - Causes skin irritation H319 - Causes serious eye irritation H335 - May cause respiratory irritation P261 - Avoid breathing dust, mist, spray P264 - Wash skin thoroughly after handling P271 - Use only outdoors or in a well-ventilated area P280 - Wear protective gloves/protective clothing/eye protection/face protection P302+P352 - If on skin: Wash with plenty of soap and water P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing P312 - Call a POISON CENTER or doctor/physician if you feel unwell P321 - Specific treatment (see supplemental first aid instructions on this label) P332+P313 - If skin irritation occurs: Get medical advice/attention P337+P313 - If skin irritation persists: Get medical advice/attention P362+P364 - Take off contaminated clothing and wash it before reuse P403+P233 - Store in a well-ventilated place. Keep container tightly closed |

(2R)-2-Aminobutanoic acid Safety Data Sheet according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

| 2.3. Other hazards | | | |
|---|--|-----------------------------|---|
| No additional information available | | | |
| 2.4. Unknown acute toxicity (GHS US | 3) | | |
| Not applicable | | | |
| SECTION 3: Composition/informa | tion on ingredients | | |
| 3.1. Substance | | | |
| Substance type | : Mono-constituent | | |
| Name | Product identifier | % | Classification (GHS-US) |
| (2R)-2-Aminobutanoic acid (Main constituent) | (CAS No) 2623-91-8 | <= 100 | Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335 |
| Full text of H-phrases: see section 16 | | · | |
| 3.2. Mixture | | | |
| Not applicable | | | |
| SECTION 4: First aid measures | | | |
| 4.1. Description of first aid measures | | | |
| ïrst-aid measures general | : In case of accident or if you feel where possible). Move the affect | | |
| irst-aid measures after inhalation | | keep comfortable for bre | eathing. If not breathing, give artificial |
| First-aid measures after skin contact | : Wash with plenty of soap and wa | | attention. |
| irst-aid measures after eye contact | : Immediately flush eyes thorough present and easy to do. Continu | | 15 minutes. Remove contact lenses, if lvice/attention. |
| First-aid measures after ingestion : Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth out with water. Get medical advice/attention. | | | |
| I.2. Most important symptoms and e | ffects, both acute and delayed | | |
| Symptoms/injuries | : The most important known symp 2.2) and/or in section 11. | otoms and effects are des | scribed in the labelling (see section |
| | ical attention and special treatment r | eeded | |
| Freat symptomatically. | | | |
| SECTION 5: Firefighting measures | S | | |
| 5.1. Extinguishing media | | | |
| Suitable extinguishing media | : Alcohol resistant foam. Carbon of appropriate for surrounding fire. | lioxide. Dry powder. Wat | ter spray. Use extinguishing media |
| 5.2. Special hazards arising from the | substance or mixture | | |
| Fire hazard | : Thermal decomposition generate | es: Carbon oxides. Nitrog | gen oxides. |
| 5.3. Advice for firefighters | | | |
| Firefighting instructions | : In case of fire: Evacuate area. | | |
| Protection during firefighting : Wear gas tight chemically protective clothing in combination with self contained breathing apparatus. For further information refer to section 8: "Exposure controls/personal protection". | | | |
| SECTION 6: Accidental release me | easures | | |
| 6.1. Personal precautions, protective | equipment and emergency procedu | es | |
| General measures | : Evacuate unnecessary personne | el. Ensure adequate air v | rentilation. Do not breathe dust. |
| 5.1.1. For non-emergency personnel | | | |
| Emergency procedures | : Only qualified personnel equipped | ed with suitable protective | e equipment may intervene. |
| 6.1.2. For emergency responders | | | |
| Protective equipment | : Do not attempt to take action wit refer to section 8: "Exposure cor | | |
| 6.2. Environmental precautions | | | |
| Avoid release to the environment. Notify auth | orities if product enters sewers or public | waters. | |
| 6.3. Methods and material for contain | ment and cleaning up | | |

| 6.3. Methods and ma | Methods and material for containment and cleaning up | | | |
|---------------------|--|-----------------|-----|--|
| For containment | : Stop leak if safe to do so. | | | |
| 12/08/2016 | EN (English US) | SDS ID: 41571X5 | 2/6 | |

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

| Methods for cl | eaning up | : Sweep or shovel spills into appropriate container for disposal. Minimize generation of dust. | |
|-------------------|---|--|--|
| Other information | | : For disposal of solid materials or residues refer to section 13 : "Disposal considerations". | |
| 6.4. Refe | erence to other sections | | |
| No additional i | nformation available | | |
| | | | |
| SECTION 7 | : Handling and storage | | |
| | 7: Handling and storage cautions for safe handling | | |
| 7.1. Pred | | : Do not handle until all safety precautions have been read and understood. Ensure good ventilation of the work station. Do not breathe dust, mist, spray. Wear personal protective equipment. Avoid contact with skin and eyes. | |

| | | smoke when using this product. Always wash hands after handling the product. | |
|--------|--|--|--|
| 7.2. | Conditions for safe storage, including any incompatibilities | | |
| Techn | cal measures | : Comply with applicable regulations. | |
| Storag | e conditions | : Keep container closed when not in use. | |
| Incom | patible materials | : Refer to Section 10 on Incompatible Materials. | |
| Storag | e area | : Store in dry, cool, well-ventilated area. | |

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

| 8.2. Exposure controls | |
|----------------------------------|--|
| Appropriate engineering controls | : Ensure good ventilation of the work station. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. |
| Hand protection | : Protective gloves. 29 CFR 1910.138: Hand Protection. |
| Eye protection | : Chemical goggles or safety glasses. Face shield. 29 CFR 1910.133: Eye and Face Protection. |
| Skin and body protection | : Wear suitable protective clothing. |
| Respiratory protection | : In case of inadequate ventilation wear respiratory protection. 29 CFR 1910.134: Respiratory Protection. |
| Other information | : Safety shoes. 29 CFR 1910.136: Foot Protection. |

SECTION 9: Physical and chemical properties

| 9.1. Information on basic physical and | I chemical properties |
|---|-----------------------|
| Physical state | : Solid |
| Color | : No data available |
| Odor | : No data available |
| Odor threshold | : No data available |
| рН | : No data available |
| Melting point | : > 300 °C |
| Freezing point | : No data available |
| Boiling point | : No data available |
| Flash point | : No data available |
| Relative evaporation rate (butyl acetate=1) | : No data available |
| Flammability (solid, gas) | : No data available |
| Explosion limits | : No data available |
| Explosive properties | : No data available |
| Oxidizing properties | : No data available |
| Vapor pressure | : No data available |
| Relative density | : No data available |
| Relative vapor density at 20 °C | : No data available |
| Molecular mass | : 103.12 g/mol |
| Solubility | : No data available |
| Log Pow | : No data available |

Safety Data Sheet according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

| Auto-ignition temperature | : No data available |
|---|---|
| Decomposition temperature | : No data available |
| Viscosity | : No data available |
| Viscosity, kinematic | : No data available |
| Viscosity, dynamic | : No data available |
| 9.2. Other information | |
| No additional information available | |
| SECTION 10: Stability and read | activity |
| 10.1. Reactivity | |
| No additional information available | |
| 10.2. Chemical stability | |
| The product is stable at normal handlin | g and storage conditions. |
| 10.3. Possibility of hazardous re | actions |
| No additional information available | |
| 10.4. Conditions to avoid | |
| Keep away from heat, sparks and flam | e. |
| 10.5. Incompatible materials | |
| Strong oxidizing agents. | |
| 10.6. Hazardous decomposition | products |
| Under normal conditions of storage and fire, see Section 5. | d use, hazardous decomposition products should not be produced. Hazardous decomposition products in case of |
| SECTION 11: Toxicological ir | nformation |
| 11.1. Information on toxicologica | al effects |
| | |
| Acute toxicity | : Not classified |

| Acute toxicity | : Not classified |
|--|-------------------------------------|
| Skin corrosion/irritation | : Causes skin irritation. |
| Serious eye damage/irritation | : Causes serious eye irritation. |
| Respiratory or skin sensitization | : Not classified |
| Germ cell mutagenicity | : Not classified |
| Carcinogenicity | : Not classified |
| Reproductive toxicity | : Not classified |
| Specific target organ toxicity (single exposure) | : May cause respiratory irritation. |
| Specific target organ toxicity (repeated exposure) | : Not classified |
| Aspiration hazard | : Not classified |

| ECTION 12: Ecological information |
|------------------------------------|
| 2.1. Toxicity |
| o additional information available |
| 2.2. Persistence and degradability |
| o additional information available |
| 2.3. Bioaccumulative potential |
| o additional information available |
| 2.4. Mobility in soil |
| o additional information available |
| 2.5. Other adverse effects |
| o additional information available |

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

| SECTION 13: Disposal considerations | | | |
|-------------------------------------|-------------------------|---|--|
| 13.1. | Waste treatment methods | | |
| Waste tre | eatment methods | : Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber. | |
| Waste di | sposal recommendations | : Dispose of contents/container in accordance with licensed collector's sorting instructions. | |
| Additiona | al information | : Recycle the material as far as possible. | |

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Not regulated for transport

TDG

No additional information available

Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory except for:

| (2R)-2-Aminobutanoic acid | CAS No 2623-91-8 | 100% |
|---------------------------|------------------|------|
| | | |

This product or mixture does not contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

| (2R)-2-Aminobutanoic acid (2623-91-8) | |
|--|--|
| Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory | |
| Listed on NZIOC (New Zealand Inventory of Chemicals) | |

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer and/or reproductive harm

SECTION 16: Other information

Full text of H-phrases:

| Eye Irrit. 2A | Serious eye damage/eye irritation Category 2A |
|---------------|---|
| Skin Irrit. 2 | Skin corrosion/irritation Category 2 |
| STOT SE 3 | Specific target organ toxicity (single exposure) Category 3 |
| H315 | Causes skin irritation |
| H319 | Causes serious eye irritation |
| H335 | May cause respiratory irritation |

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

| NFPA health hazard | : 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given. |
|--------------------|---|
| NFPA fire hazard | : 0 - Materials that will not burn. |
| NFPA reactivity | : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water. |
| HMIS III Rating | |
| Health | : 2 Moderate Hazard - Temporary or minor injury may occur |
| Flammability | : 0 Minimal Hazard - Materials that will not burn |
| Physical | : 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives. |

SDS US (GHS HazCom 2012)

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is offered solely for your consideration, investigation, and verification. It does not represent any guarantee of the properties of the product nor that the hazard precautions or procedures described are the only ones which exist. SynQuest shall not be held liable or any damage resulting from handling or from contact with the above product.