GPS/JIPS Safety Summary

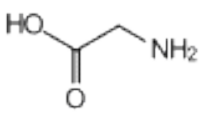
1. SUBSTANCE NAME

Glycine (CAS No.56-40-6)

2. GENERAL STATEMENT

Glycine of YUKI GOSEI KOGYO CO., LTD. is used as food additives, pharmaceuticals, cosmetics, industrial materials and reagents.
Glycine is a protein-constituting amino acid and human usually take lots of protein including glycine as a nutrient from foods. No particular problems regarding safety have been found so far in the use of glycine in various fields e.g. veterinary drugs, feed additives.
Worker exposure to glycine via dermal and inhalation routes is expected in industrial uses during manufacturing or processing of glycine and products containing glycine. Therefore, it is recommended to use a closed system, machine or local exhaust ventilation system to ensure adequate ventilation as well as providing appropriate personal protective equipments (e.g. safety goggles, respiratory protection such as masks, gloves) in order to minimize exposure.
When consumers use products containing glycine, be sure to use the products in accordance with the instruction manuals attached. In addition, emissisons to the environment is expected during industrial uses such as manufacturing or processing of glycine, or uses of products containing glycine. Therefore, it is recommended to take measures to prevent leakage and to install waste water treatment equipment and carry out periodic maintenance of equipment in order to minimize the impact on environmental organisms.

3. CHEMICAL IDENTITY

General name	Glycine
Brand name	Glycine
IUPAC name	Aminoacetic acid
CAS number	56-40-6
Other identical numbers	EC number: 200-272-2 MITI Number: (9)-77 (CSCL[1)], ISHA[2)])
Molecular formula	H_2NCH_2COOH
Structural formula	

Other information	Not specified
References	NikkajiWeb NITE Chemical Risk Information Platform (NITE-CHRIP)

1) Chemical Substances Control Law in Japan

2) Industrial Safety and Health Act in Japan

4. USES AND APPLICATIONS

Main uses	Glycine of YUKI GOSEI KOGYO CO., LTD. is used as food additives, pharmaceuticals, cosmetics, industrial materials and reagents.

5. PHYSICAL/CHEMICAL PROPERTIES

Property	Value
Form (physical state)	Crystalline powder (20°C, 1013 hPa)
Colour	White
Odour	Odourless
Relative density	1.161 g/cm^3 (20°C)
Melting point / Boiling point	Melting point: 233°C (dec)
Flammability	Non flammable No pyrophoricity No flammability on contact with water
Flash point	Not applicable
Explosive properties	Not explosive
Autoflammability / self-ignition temperature	Not self-heating
Vapour pressure	0.0000171 Pa (25°C)
Molecular Weight	75.05
Water solubility	250 g/L (25°C)
Partition coefficient n-octanol / water	log Kow = -3.21
Reference	Chemical Safety Report, Safety Data Sheet

6. HEALTH EFFECTS

Effect Assessment	Result
Acute toxicity	No adverse effect observed
Skin corrosion / irritation	No adverse effect observed (not irritating)
Serious damage / eye irritation	No adverse effect observed (not irritating)
Respiration sensitization	No study available
Skin sensitization	No adverse effect observed (not sensitizing)
Genetic toxicity	No adverse effect observed (negative)

Carcinogenicity	No adverse effect observed
Reproductive toxicity	No adverse effect observed
Repeated dose toxicity	No adverse effect observed
Reference	Chemical Safety Report

7. ENVIRONMENTAL EFFECTS

Effect Assessment	Result
Aquatic Toxicity	No hazard identified
Hazardous to the ozone layer	No hazard identified
Reference	Chemical Safety Report

Fate and behaviour	Result
Mobility in environment	・Potential for adsorption to organic soil is low on the basis of the estimated Koc of 1 at 25°C. ・Evaporation from the water surface into the atmosphere is not to be expected on the basis of the estimated Henry's Law constant H of 0.000000001 Pa・m^3/mol at 25°C.
Biodegradation	A screening test according to OECD test guideline resulted in readily biodegradable.
Bioaccumulation potential	Model calculations confirm a low bioaccumulation potential for glycine.
PBT/vPvB conclusion	Not a PBT / vPvB substance
Reference	Chemical Safety Report

8. EXPOSURE

Subject	Exposure potential for main uses of our products (Route of exposure)
Worker exposure	Worker exposure to glycine via dermal and inhalation routes is expected in industrial uses during manufacturing or processing of glycine and products containing glycine. (PROC3, PROC4) PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Chemical production where opportunity for exposure arises
Consumer exposure	Consumer exposure via oral route is expected as glycine is used as food additives, feed additives and pharmaceuticals. Consumer exposure via dermal and inhalation routes is expected when using products containing glycine (e.g. cosmetics, personal care products).

Environmental exposure	Emission to the environment is expected during industrial uses such as manufacturing or processing of glycine, or uses of products containing glycine.

9. RISK MANAGEMENT RECOMMENDATIONS

Subject	Recommended Risk Management Measures
Worker exposure	− Use a closed system, machine or local exhaust ventilation system to ensure adequate ventilation in order to minimize exposure. − Take measures to prevent dust generation. In the case of dust generation, consider to use dust protection mask or powered air purifying respirator as well as simple dust mask. − Use appropriate personal protective equipments (e.g. safety goggles, respiratory protection such as masks, gloves) and be sure to have an eyewash and shower equipment near the handling area. − Workplace managers ensure to train and educate workers on the selection and use of appropriate protective equipments and the way of maitaining workplace safety.
Consumer exposure	− Use in accordance with instruction manuals attached to the products
Environmental exposure	− Take measures to prevent leakage and to install waste water treatment equipment and carry out periodic maintenance of equipment in order to minimize the impact on environmental organisms. − Prevent residues of glycine or products containing glycine from entering rivers, surface water channel or drains.
Remarks	None
Notes	None

10. SUBSTANCE REVIEW INFORMATION

Review Program	Review status
International Chemical Safety Cards (ICSC)	−
OECD High Production Volume Chemicals (HPV Chemicals)	−
Evaluations of the Joint FAO/WHO Expert Committee on Food Additives (JECFA)	Evaluation of certain food additives: sixty-third report of the Joint FAO/WHO Expert Committee on Food Additives. http://apps.who.int/iris/bitstream/handle/10665/43141/WHO_TRS_928.pdf;jsessionid=8F2B96D00DFCB2430CA3592C4BF0EA64?sequence=1

Others	
Japan HPV Challenge Program	Final Report is available from: http://www.safe.nite.go.jp/jcheck/detail.action?cno=56-40-6&mno=9-0077&request_locale=ja

11 Regulatory information / GHS classification and labelling information

Regulatory information

Legislation	Regulatory status
REACH	Registered Substance http://echa.europa.eu/registration-dossier/-/registered-dossier/14889
Chemical Substances Control Law (CSCL) in Japan	Existing Chemical
Industrial Safety and Health Act (ISHA) in Japan	Existing Chemical
Food Sanitation Act in Japan	Designated additives, Article 10 of the act, appended table 1 cited in Article 12 of Ordinance for Enforcement
Act on Safety Assurance and Quality Improvement of Feeds in Japan	Feed additives, Article 2 (3) of the Act, Notice of Ministry of Agriculture and Forestry and Fisheries of Japan No. 270 (4th February, 2010)
The Law on Securing Quality, Efficacy and Safety of Products Including Pharmaceuticals and Medical devices in Japan	Pharmaceuticals, Listed in Japanese Standards of Quasi-drug Ingredients

GHS classification

Type of hazard	Classification
Physical hazard	Not classified
Health hazard	Not classified
Environmental hazard	Not classified

GHS labelling elements

Pictogram / symbol	Not applicable
Signal word	Not applicable
Hazard statement	Not applicable

12. CONTACT INFORMATION

Company name: YUKI GOSEI KOGYO CO., LTD.
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13. DATE OF ISSUE / REVISION DATE / OTHER INFORMATION

Date of issue: December 3, 2018

Revision history:

Revision date	Section	changes	Version

Other information: None

14. DISCLAIMER

This GPS safety summary is intended to provide information on chemical products as a brief summary in line with GPS (Global Product Strategy) of the chemical industry. It does not provide expert information such as risk assessment procedures and/or effects on human health and the environment. It is not intended to replace Safety Data Sheet (SDS) or Chemical Safety Report (CSR). The information provided is based on the regulations, materials and information available at the date of its publication, however, it provides no warranty or representation regarding the content. In addition, it is not intended to specify the quality of the product.