

Material Safety Data Sheet

Cherry Berry E-Liquid 20mg/mL nicotine

According to regulation (EU) 2020/878, (EC) No. 1907/2006, (EC) No. 1272/2008

SECTION 1. Identification of the substance/mixture and details of the supplier/manufacturer

1.1 Product identifier

Product identity Cherry Berry E-Liquid 20mg/mL nicotine
Product code 1819468-20

1.2 Recommended use of the product and restrictions on use

Relevant identified uses To used in electronic cigarettes
Uses advised against Not known

1.3 Details of the supplier of the safety data sheet

Supplier Dongguan Hongfu Biotechnology Co.,Ltd
Address of the supplier Room 301, Building 1, No.10, Yunlian 9th Street, Dalang Town, Dongguan City, Guangdong Province, China
Post code 528244
Fax number +86 769 83001870
E-mail address info@hfflavor.com
National contact +86 769 83001870

1.4 Emergency telephone number

General in EU 112 (Available 24 hours a day. MSDS/Product information may not be available for the Emergency Service.)
United Kingdom In England and Wales: dial 111 (NHS 111), In Scotland: dial 111 (NHS 24), In Northern Ireland: Contact your local GP or pharmacist during normal hours. During GP Out-of-Hours (www.gpoutofhours.hscni.net/): Belfast HSC Trust, (North & West) 028 9074 4447, (South & East) 028 9079 6220 South Eastern HSC Trust, (North Down & Ards) 028 9182 2344, (Lisburn & Downpatrick) 028 9260 2204, Dalriada Urgent Care (Northern Trust area) 028 2566 3500, Southern HSC Trust 028 3839 9201, Western Urgent Care 028 7186 5195.

SECTION 2. Hazards identification

2.1 Classification of the substance or mixture

2.1.1 Classification according to Regulation (EC) No 1272/2008 (CLP)

Acute Tox. 3 H301
Skin Sens. 1 H317

2.1.2 Additional information:

For full text of Hazard and EU Hazard statements: see SECTION 16.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 [CLP]

Material Safety Data Sheet

Cherry Berry E-Liquid 20mg/mL nicotine

According to regulation (EU) 2020/878, (EC) No. 1907/2006, (EC) No. 1272/2008

Hazard
pictogram(s)



Signal word Danger

Hazard-determining components of labelling:

Nicotine
2-isopropyl-N,2,3-trimethylbutyramide (WS-23)
4-hydroxy-2,5-dimethylfuran-2(3H)-one (Furaneol)

Hazard statement(s):

H301 Toxic if swallowed.
H317 May cause an allergic skin reaction.

Precautionary statement(s):

P261 Avoid breathing fume or vapours or spray.
P264 Wash hands thoroughly after handling.
P280 Wear protective gloves and eye protection.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P405 Store locked up.
P501 Dispose of contents and container in accordance with local regulations.

2.3 Other hazards

This product is not identified as a PBT/vPvB or endocrine disrupting properties.

SECTION 3. Hazardous substance ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Ingredient	W/V %	CAS No.	CLP Classification	SCL/M-factor/ATE	Function
Propane-1,2-diol EC No.: 200-338-0	46.26	57-55-6	Not Classified	—	Carrier
Glycerol EC No.: 200-289-5	40.00	56-81-5	Not Classified	—	Carrier

Material Safety Data Sheet

Cherry Berry E-Liquid 20mg/mL nicotine

According to regulation (EU) 2020/878, (EC) No. 1907/2006, (EC) No. 1272/2008

Triacetin EC No.: 203-051-9	2.72	102-76-1	Not Classified	—	Carrier
Nicotine EC No.: 200-193-3	2.00	54-11-5	Acute Tox. 2 H300 Acute Tox. 2 H310 Acute Tox. 2 H330 Aquatic Chronic 2 H411	inhalation: ATE = 0.19 mg/L (dusts or mists) dermal: ATE = 70 mg/kg bw oral: ATE = 5 mg/kg bw	Addictive Enhancer
Benzoic acid EINECS: 200-618-2	2.00	65-85-0	Skin Irrit. 2 H315 Eye Dam. 1 H318 STOT RE 1 H372 (lungs) (Inhalation)	—	pH Modifier
4-methyl-2-phenyl- 1,3-dioxolane EC No.: 219-906-4	1.81	2568-25-4	Not Classified	—	Flavour and/or Taste Enhancer
2-isopropyl-N,2,3- trimethylbutyramid e EC No.: 256-974-4	1.80	51115-67-4	Acute Tox. 4 H302	—	Flavour and/or Taste Enhancer
Ethyl butyrate EC No.: 203-306-4	1.14	105-54-4	Flam. Liq. 3 H226 Eye Irrit. 2 H319	—	Flavour and/or Taste Enhancer
4-(4- hydroxyphenyl)buta n-2-one EC No.: 226-806-4	0.51	5471-51-2	Not Classified	—	Flavour and/or Taste Enhancer
acetic acid EC No.: 200-580-7	0.48	64-19-7	Flam. Liq. 3 H226 Skin Corr. 1A H314	Eye Irrit. 2; H319: 10 % ≤ C < 25 % Skin Corr. 1A; H314: C ≥ 90 % Skin Corr. 1B; H314: 25 % ≤ C < 90 % Skin Irrit. 2; H315: 10 % ≤ C < 25 %	pH Modifier
2-ethyl-3-hydroxy- 4-pyrone EC No.: 225-582-5	0.30	4940-11-8	Acute Tox. 4 H302	—	Flavour and/or Taste Enhancer
4-hydroxy-2,5- dimethylfuran- 2(3H)-one EC No.: 222-908-8	0.25	3658-77-3	Acute Tox. 4 H302 Skin Corr. 1B H314 Skin Sens. 1A H317 Eye Dam. 1 H318 EUH071	—	Flavour and/or Taste Enhancer

Material Safety Data Sheet

Cherry Berry E-Liquid 20mg/mL nicotine

According to regulation (EU) 2020/878, (EC) No. 1907/2006, (EC) No. 1272/2008

ethyl acetate EC No.: 205-500-4	0.23	141-78-6	Flam. Liq. 2 H225 Eye Irrit. 2 H319 STOT SE 3 H336 EUH066	—	Flavour and/or Taste Enhancer
Vanillin EC No.: 204-465-2	0.20	121-33-5	Eye Irrit. 2 H319	—	Flavour and/or Taste Enhancer
cis-hex-3-en-1-ol EC No.: 213-192-8	0.16	928-96-1	Flam. Liq. 3 H226 Eye Irrit. 2 H319	—	Flavour and/or Taste Enhancer
Ethyl 2-methylbutyrate EC No.: 231-225-4	0.14	7452-79-1	Flam. Liq. 3 H226	—	Flavour and/or Taste Enhancer

The full texts of the H and EUH phrases are shown in Section 16.

SECTION 4. First aid measures

4.1 Description of first-aid measures

General advice

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

Eye contact

Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue to flush for at least 15 minutes. Keep eye wide open while rinsing. Seek immediate medical attention/advice.

Skin contact

Wash off immediately with soap and plenty of water.

Ingestion

Immediate medical attention is required. Call a physician or Poison Control Centre immediately. DO NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person.

Inhalation

Move to fresh air. If breathing is difficult, give oxygen. Seek immediate medical attention/advice.

Protection for first-aiders

Use personal protective equipment. Avoid contact with skin, eyes, and clothing. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves, and prevent the spread of contamination.

4.2 Most important symptoms and effects, both acute and delayed

Nausea. Tremors. Headaches. Dizziness. Salivation. Diarrhea. CNS depression. Difficulty breathing. Shortness of breath. Respiratory failure.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5. Fire-fighting measures

Material Safety Data Sheet

Cherry Berry E-Liquid 20mg/mL nicotine

According to regulation (EU) 2020/878, (EC) No. 1907/2006, (EC) No. 1272/2008

5.1 Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings.

Water spray.

Alcohol resistant foam.

Dry extinguishing powder.

Unsuitable extinguishing media: High-power water jet.

5.2 Special hazards arising from the substance or mixture

Can be released in case of fire: Carbon monoxide. Carbon dioxide (CO₂). Nitrogen oxides (NO_x)

5.3 Advice for firefighters

Wear self-contained breathing apparatus and protective suit.

Move undamaged containers from immediate hazard area if it can be done safely.

5.4 Additional information

Use water spray jet to protect personnel and to cool endangered containers.

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Keep people away and upwind of spill/leak. Use personal protective equipment.

Do not get in eyes, on skin, or on clothing.

Do not breathe vapour/spray/mist.

Ensure adequate ventilation.

Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so.

keep away from drains, surface and ground water.

Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and clean up

Prevent further leakage or spillage if safe to do so.

Use personal protective equipment.

Small spillage Wipe liquids with wet absorbent gauze. Clean contaminated surface thoroughly.

Large spillage Gently cover spill with damp cloths or towels. Be sure not to generate dust or aerosols.

Access to the spill areas should be restricted. All contaminated surfaces should be cleaned.

Collect in suitable and properly labelled containers.

6.4 Reference to other sections

Material Safety Data Sheet

Cherry Berry E-Liquid 20mg/mL nicotine

According to regulation (EU) 2020/878, (EC) No. 1907/2006, (EC) No. 1272/2008

If appropriate Sections 8 and 13 shall be referred to

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Do not get in eyes, on skin, or on clothing. Do not breathe vapour/dust. Keep out of the reach of children.

Advice on protection against fire and explosion

Usual measures for fire prevention.

Further information on handling

General protection and hygiene measures: refer to chapter 8 Read label before use. Keep away from heat

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep locked up. Keep only in the original container in a cool, well-ventilated place. Protect from moisture.

Recommended storage temperature: at room temperature.

Advice on storage compatibility

Do not store together with: Explosives. Oxidizing liquids. Oxidizing solids. Self-reactive substances and mixtures.

Organic peroxides. Ammonium nitrate. Combustible toxic substances. Non-combustible toxic substances.

Radioactive substances. Infectious substances

Further information on storage conditions

Protect against: Light. UV-radiation/sunlight. Heat. Cold. moisture.

Incompatibilities

Not available

7.3 Specific end use(s)

To use in electronic cigarettes.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

Exposure limits

Chemical Name	Cas No.	EU	UK
Propane-1,2-diol	57-55-6	—	TWA: 474 mg/m³ TWA: 150 ppm
Glycerol	56-81-5	—	TWA: 10 mg/m³
Nicotine	54-11-5	TWA: 0.5 mg/m³ (skin)	TWA: 0.5 mg/m³ STEL: 1.5 mg/m³ (Sk)
acetic acid	64-19-7	TWA: 25 mg/m³ TWA: 10 ppm STEL: 50 mg/m³ STEL: 20 ppm	TWA: 25 mg/m³ TWA: 10 ppm STEL: 50 mg/m³ STEL: 20 ppm

Material Safety Data Sheet

Cherry Berry E-Liquid 20mg/mL nicotine

According to regulation (EU) 2020/878, (EC) No. 1907/2006, (EC) No. 1272/2008

ethyl acetate	141-78-6	TWA: 734 mg/m ³ TWA: 200 ppm STEL: 1468 mg/m ³ STEL: 400 ppm	TWA: 734 mg/m ³ TWA: 200 ppm STEL: 1468 mg/m ³ STEL: 400 ppm
---------------	----------	---	---

8.2 Exposure controls

Engineering measures

Ensure adequate ventilation, especially in confined areas.

Eye protection



If splashes are likely to occur, wear safety glasses with side shields

Skin/body protection



Suitable Impervious gloves material: Butyl rubber. Suitable protective clothing: Lab coat.

Respiratory protection

With correct and proper use, and under normal conditions, breathing protection is not required. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA-approved respiratory protection should be worn.

Respiratory protection must be provided by current local regulations.

Environmental exposure controls

If this product contains ingredients with exposure limits, personal, workplace, or biological monitoring maybe required to determine the effectiveness of ventilation or other control measures and/or the need to use respirators. Reference should be made to European Standard EN 689 for methods of assessing exposure to chemicals through inhalation and to national guides for methods of determining hazardous substances.

SECTION 9. Physical and chemical properties

9.1 Information on basic chemical and physical properties

Physical state	Liquid
Colour	Yellow
Odour	Cherry Berry
Boiling point/Boiling range	Not available
Freezing point	Not available
Flash point	> 80°C
Flammability (solid, gaseous)	Not available
Ignition temperature	Not available
Decomposition temperature	Not available
Self-igniting	Product is not self-igniting.

Material Safety Data Sheet

Cherry Berry E-Liquid 20mg/mL nicotine

According to regulation (EU) 2020/878, (EC) No. 1907/2006, (EC) No. 1272/2008

Auto-ignition temperature	Not available
Danger of explosion	Product does not present an explosion hazard
Explosion limits	Not available
Lower	Not available
Upper	Not available
Oxidizing properties	Not available
Density	1.1149±0.01 g/mL
Relative density at 20°C	1.1169±0.01
pH-value	5.54±0.50
Refractive index at 20°C	1.42-1.47
Viscosity Dynamic at 20°C	170.00(100±20) %mPa·s
Vapour density	Not available
Evaporation rate	Not available
Solubility	Easily soluble in water
Partition coefficient (n-octanol/water)	Not available
Critical pressure	Not available
Critical temperature	Not available
Heat of combustion	Not available
Vapour temperature	Not available
End uses	E-liquid

SECTION 10. Stability and reactivity

10.1 Reactivity

No decomposition if used according to specifications.

10.2 Chemical stability

No hazardous reaction when handled and stored according to provisions

10.3 Possibility of hazardous reactions

Not expected under normal conditions of use.

10.4 Conditions to avoid

Avoid extreme heat.

10.5 Incompatible materials

Avoid contact with strong acids, alkalis or oxidising agents.

10.6 Hazardous decomposition products

No known hazardous decomposition products.

SECTION 11. Toxicological information

Material Safety Data Sheet

Cherry Berry E-Liquid 20mg/mL nicotine

According to regulation (EU) 2020/878, (EC) No. 1907/2006, (EC) No. 1272/2008

11.1 Information on toxicological effects

This mixture has not been tested as a whole for health effects. The health effects have been Calculate1d using the methods outlined in Regulation (EC) No 1272/2008 (CLP).

(a) Acute toxicity

LD/LC50 values relevant for classification:

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

Chemical name	Cas No.	LD50/ATE Oral	LC50/ATE Inhalation	LD50/ATE Dermal
Nicotine	54-11-5	5 mg/kg bw	CATpE=0.5mg /L(Vapour)	70 mg/kg bw
2-isopropyl-N,2,3-trimethylbutyramide	51115-67-4	490 mg/kg bw	—	—

The acute toxicity estimate (ATEmix) for the classification of a substance in a mixture was determined using the appropriate values from ECHA website.

Mixture Acute

Toxicity

Toxic if swallowed.

Acute toxicity [dermal] classification criteria are not met.

Acute toxicity [inhalation] classification criteria are not met.

ATEmix (oral) = 248 mg/kg bw

ATEmix (dermal) = Acute toxicity [dermal] classification criteria are not met.

ATEmix

(inhalation) =

Acute toxicity [inhalation] classification criteria are not met.

The mixture is a liquid and the **vapour** physical form is the only proper hazard type for inhalation route.

(b) Skin corrosion/irritation

Based on available data the classification criteria are not met.

(c) Serious eye damage/irritation

Based on available data the classification criteria are not met.

(d) Respiratory or skin sensitisation

May cause an allergic skin reaction.

(e) Germ cell mutagenicity

Based on available data the classification criteria are not met.

(f) Carcinogenicity

Based on available data the classification criteria are not met.

(g) Reproductive toxicity

Based on available data the classification criteria are not met.

(h) STOT-single exposure

Based on available data the classification criteria are not met.

(i) STOT-repeated exposure

Based on available data the classification criteria are not met.

(j) Aspiration hazard

Based on available data the classification criteria are not met.

Material Safety Data Sheet

Cherry Berry E-Liquid 20mg/mL nicotine

According to regulation (EU) 2020/878, (EC) No. 1907/2006, (EC) No. 1272/2008

11.2 Endocrine disrupting properties

Not listed.

11.3 Information on other hazards

There is no additional information.

SECTION 12. Ecological information

12.1 Toxicity

Aquatic toxicity of components of the mixture

Chemical name	CAS No.	96 hr LC50 fish (mg/L)	48 hr EC50 crustacea (mg/L)	Biodegradability (%)	3hr IC50 Bacteria (mg/L)
Propane-1,2-diol	57-55-6	40613	18340	96(64)	—
Glycerol	56-81-5	885(Fathead Minnow)	—	98.7(24h)	—
Triacetin	102-76-1	>100	380(Daphnia magna)	76(28d)	—
Nicotine	54-11-5	>3(zebra fish)	3(Daphnia magna)	71(28d)	—
2-isopropyl-N,2,3-trimethylbutyramide	51115-67-4	—	>100(Daphnia magna)	20(28d)	—
Ethyl butyrate	105-54-4	≥100(zebra fish)	116.6(Daphnia magna)	50(42d)	—

12.2 Persistence and degradability

There is no data available on the preparation itself.

12.3 Bioaccumulative potential

No available information

12.4 Mobility in soil

No available information

12.5 Results of PBT and vPvB assessment

This product contains no PBT/vPvB chemicals

12.6 Endocrine disrupting properties

This product contains no endocrine disrupting properties chemicals

12.7 Other adverse effects

Material Safety Data Sheet

Cherry Berry E-Liquid 20mg/mL nicotine

According to regulation (EU) 2020/878, (EC) No. 1907/2006, (EC) No. 1272/2008

No additional information available

SECTION 13. Disposal considerations

13.1 Waste treatment methods

Observe all federal, state and local regulations when disposing of this substance.

SECTION 14. Transport information

14.1 UN Number

ADR	UN 3144
IMDG	UN 3144
IATA	UN 3144

14.2 UN proper shipping name

ADR	NICOTINE PREPARATION, LIQUID, N.O.S. (nicotine E-Liquid)
IMDG	NICOTINE PREPARATION, LIQUID, N.O.S. (nicotine E-Liquid)
IATA	NICOTINE PREPARATION, LIQUID, N.O.S. (nicotine E-Liquid)

14.3 Transport hazard class(es)

ADR	Class 6.1: Toxic substances
IMDG	Class 6.1: Toxic substances
IATA	Class 6.1: Toxic substances

Transport pictograms on the label:



14.4 Packing group

ADR	III
IMDG	III
IATA	III

14.5 Environmental hazards

Not available

14.6 Special precautions for user

Move carefully to prevent leakage during carriage. Keep necessary protective articles at hand in case of accident.
Use emergency escape mask when in need.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

Not available

Material Safety Data Sheet

Cherry Berry E-Liquid 20mg/mL nicotine

According to regulation (EU) 2020/878, (EC) No. 1907/2006, (EC) No. 1272/2008

SECTION 15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations

REGULATION (EU) 2020/878 amending Regulations EU 2015/830 and (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).
REGULATION (EC) 1272/2008 on the classification, labeling and packaging of substances and mixtures (CLP).

List of substances subject to authorisation (REACH, Annex XIV)/SVHC - candidate list

Not listed.

Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

Not listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles:

Not listed.

- Ethyl butyrate
- acetic acid
- ethyl acetate
- cis-hex-3-en-1-ol
- Ethyl 2-methylbutyrate

15.2 Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16. Other information

Indication of changes

Alignment to regulation: Regulation (EC) No. 1907/2006 (REACH), amended by 2020/878/EU
Restructuring: none

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
UFI	Unique Formula Identifier
vPvB	Very Persistent and very Bioaccumulative
UK	United Kingdom
EU	The European Union
ADR	the Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG	International Maritime Dangerous Goods Code
IATA	International Air Transport Association

Material Safety Data Sheet

Cherry Berry E-Liquid 20mg/mL nicotine

According to regulation (EU) 2020/878, (EC) No. 1907/2006, (EC) No. 1272/2008

CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
SCL	specific concentration limits
SVHC	Substance of Very High Concern
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
ATE	Acute toxicity estimate
cATpE	Converted Acute Toxicity point Estimate
PBT	Persistent, Bioaccumulative and Toxic
BMGVs	Biological monitoring guidance values.
Carc	Capable of causing cancer and/or heritable genetic damage.
Sen	Capable of causing occupational asthma.
Sk	Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.
LC50	Lethal Concentration 50%
EC50	Concentration for 50 % of Maximal Effect
IC50	Half Maximal Inhibitory Concentration
LD50	Lethal Dose 50 %

Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.

Regulation (EC) No. 1907/2006 (REACH), amended by 2020/878/EU.

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN). International Maritime

Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Classification	Classification procedure
Acute Tox. 3 H301	Calculation method
Skin Sens. 1 H317	Calculation method

List of relevant phrases (code and full text as stated in section 2 and 3)

Code	Text
H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H300	Fatal if swallowed.
H302	Harmful if swallowed.
H310	Fatal in contact with skin.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.

Material Safety Data Sheet

Cherry Berry E-Liquid 20mg/mL nicotine

According to regulation (EU) 2020/878, (EC) No. 1907/2006, (EC) No. 1272/2008

H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H336	May cause drowsiness or dizziness.
H411	Toxic to aquatic life with long lasting effects.

Disclaimer

This information is based upon the present state of our knowledge. This MSDS has been compiled and is solely intended for this product.

Author: Xie Yuxuan

Verifier: Jingwen Wang

Date: 2024/11/27