

MATERIAL SAFETY DATA SHEET

CODE: 41-7350

MSDS No. 099013E1
Issue Date: 1999/02/03**IDENTITY** Autokit 3-HB

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : Autokit 3-HB*MANUFACTURER* : Wako Pure Chemical Industries, Ltd.*SUPPLIER (In JAPAN)* : Wako Pure Chemical Industries, Ltd.*ADDRESS* : 1-2, Doshomachi 3-chome, Chuo-ku, Osaka, 540-8605, Japan*TELEPHONE NUMBER & EMERGENCY TELEPHONE NUMBER*: (06)203-3741*SUPPLIER (In U. S. A.)* : Wako Chemicals USA, Inc.*ADDRESS* : 1600 Bellwood Road, Richmond, VA 23237, U. S. A.*TELEPHONE NUMBER* : (800)992-9256*EMERGENCY TELEPHONE NUMBER* : (800)424-9300 (CHEMTREC)*SUPPLIER (In EUROPE)* : Wako Chemicals GmbH, Germany*ADDRESS* : Nissanstrasse 2, D-41468 Neuss, GERMANY*TELEPHONE NUMBER & EMERGENCY TELEPHONE NUMBER* : (02131)311-0

2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS NUMBER	CONTENT
[1] Thio-NAD ; Thio-NAD trihydrate①	_____	90.9 %
[2] Buffer ; 20mmol/L Phosphate buffer (pH7.0) AADC ② Sodium azide ③	_____ 9025-03-0 26628-22-8	_____ _____ 0.018%
[3] Enzyme ; 3-HBDH ④ NADH disodium salt ⑤	9028-38-0 606-68-8	_____ 9.71%
[4] Diluent ; 0.2mol/L Good's buffer (pH 9.0) Sodium azide ③	_____ 26628-22-8	_____ 0.051%

SYNONYMS : ①= β -Thionicotinamide adenine dinucleotide trihydrate

②= Acetoacetate decarboxylase, E.C.4.1.1.4, Acetoacetic acid decarboxylase

③= Azide, Azium

④= 3-Hydroxybutyrate dehydrogenase, E.C.1.1.1.30

⑤= β -Nicotinamide adenine dinucleotide disodium salt*FORMULA* : ①= $C_{21}H_{27}N_7O_{13}P_2S \cdot 3H_2O$, ③= NaN_3 , ⑤= $C_{21}H_{29}N_7O_{14}P_2 \cdot 2Na$, ②, ④= Not available*MOLECULAR WEIGHT* : ①= 733.55, ③= 65.01, ⑤= 711.43, ②, ④= Not available*TSCA INVENTORY* : ③, ⑤= Listed, ①, ②, ④= Not listed (See section15)*EINECS No.* : ①= 233-828-6 (as Anhydrous, CAS No. 4090-29-3), ②= Not listed

③= 247-852-1, ④= 232-830-6, ⑤= 210-123-3

INDICATION OF DANGER : _____, R _____

3. HAZARDS IDENTIFICATION

May be harmful if inhaled and ingested.

4. FIRST AID MEASURES

GENERAL ADVICE : Wash off immediately with soap and plenty of water. In the case of respirable dust and/or fumes, use self-contained breathing apparatus and dust impervious protective suit. Use personal protective equipment.

INHALATION : Move victim to fresh air. If breathing is difficult, give oxygen. If irritation persists, consult a physician.

SKIN CONTACT: Remove contaminated clothes and shoes, rinse skin with plenty of water or shower. Use soap to help assure removal. If irritation persists, consult a physician.

EYE CONTACT: Remove any contact lenses at once. Flush eyes well with flooding amounts of running water for at least 15 minutes. Assure adequate flushing by separating the eyelids with sterile fingers. If irritation persists, consult a physician.

INGESTION : Rinse mouth, give plenty of water to dilute the substance. Never give anything by mouth to an unconscious person. Consult a physician.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA : Carbon dioxide, dry chemical powder, foam, water

FIRE & EXPLOSION HAZARDS : [1] , [3] ; Toxic, irritating dust or smoke may be emitted.
[2] , [4] ; Toxic, irritating fumes or smoke may be emitted.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS : Firemen should wear normal protective equipment (full bunker gear) and positive-pressure self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS : Remove ignition sources and ventilate area. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid contact with skin and eyes.

ENVIRONMENTAL PRECAUTIONS : Prevent spills from entering sewers, watercourses or low areas.

METHODS FOR CLEAN UP :

[1] , [3] ; Do not touch spilled material without suitable protection (See section 8). After material is completely picked up, wash the spill site with soap and water and ventilate the area. Put all wastes in a plastic bag for eventual disposal (do not seal it tightly). Remove, clean, or dispose of contaminated clothing.

[2] , [4] ; Do not touch spilled material without suitable protection (See section 8). After material is completely picked up, wash the spill site with soap and water and ventilate the area. Put all wastes in a plastic bag for eventual disposal (do not seal it tightly). Remove, clean, or dispose of contaminated clothing.

7. HANDLING AND STORAGE

For in vitro diagnostic use.

HANDLING : Avoid contact with eyes, skin and clothing. Avoid prolonged or repeated exposure. Handle material with suitable protection.

STORAGE : Store away from sunlight in a cool (2~10°C = 35.6~50° F) well-ventilated dry place. Do not freeze. Keep container tightly closed.

See the package insert for further handling information.

INCOMPATIBLE PRODUCTS : Strong oxidizers, acids, heavy metals, water-reactive materials (Alkali metals etc.)

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING MEASURES : Use exhaust ventilation to keep airborne concentrations below exposure limits. Use only with adequate ventilation.

VENTILATION : Local Exhaust ; Necessary, Mechanical (General) ; Necessary Special; Closed system is recommended.

CONTROL PARAMETER :

- ③ ; OSHA Final Limits ; None established
ACGIH TLV(s) ; Ceiling= 0.29 mg/m3
①, ②, ④, ⑤ ; None established

PERSONAL PROTECTION :

Respiratory protection ; NIOSH/MSHA approved respirator
Hand protection ; Chemical resistant gloves
Eye protection ; Safety glasses(goggles)
Skin protection ; Protective clothing

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE : [1] ; Yellow lyophilized powder
[2] ; Colorless clear liquid
[3] ; White lyophilized powder
[4] ; Colorless clear liquid
ODOR : [1] , [2] , [3] , [4] ; Odorless
pH : [1] ; 4.00(at 25°C= 77° F) , [2] ; 7.00(at 25°C= 77° F)
[3] ; 8.50(at 25°C= 77° F) , [4] ; 9.00(at 25°C= 77° F)
BOILING POINT : Not available
MELTING POINT : Not available
FLASH POINT : Not available
FLAMMABILITY (solid, gas) : [1] , [3] ; Not available, [2] , [4] ; —
DECOMPOSITION TEMPERATURE : Not available
EXPLOSIVE LIMITS : Not available
VAPOR PRESSURE : Not available
SPECIFIC GRAVITY : [1] , [3] ; Not available, [2] ; 1.002, [4] ; 1.036
SOLUBILITY IN :
WATER : [1] , [3] ; Soluble, [2] , [4] ; Miscible
log Po/w : Not available

10. STABILITY AND REACTIVITY

CONDITION TO AVOID : Sunlight, heat
INCOMPATIBILITY (MATERIAL TO AVOID) : Strong oxidizers, acids, heavy metals, water-reactive materials (Alkali metals etc.)
HAZARDOUS DECOMPOSITION PRODUCTS : Carbon monoxide, nitrogen oxides, phosphor oxides, sulfur oxides and sodium compounds may be formed.
HAZARDOUS POLYMERIZATION : Will not occur.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY DATA : Not available as the mixture
③= LDLo(oral, man) : 29 mg/kg (MTAEEB 4, 219, 1989)
TDLo(oral, human) : 710 µg/kg; Behavioral; Kidney, ureter, bladder (JCPAAK 28, 350, 75)
LD50(oral, rat) : 27 mg/kg (FMCHA2 -, C21, 83)
LD50(skin, rabbit) : 20 mg/kg (FMCHA2 -, 21, 83)
IRRITATION DATA : Not available as the mixture and components
MUTATION DATA : Not available as the mixture
③= Microbial mutation without S9 : S. typhimurium;
10 µg/plate (MUREAV 144, 231, 85)
REPRODUCTIVE EFFECTS DATA : Not available as the mixture and components
TUMORIGENIC DATA : Not available as the mixture
③= TDLo(oral, rat) : 2730 mg/kg/78W-C; Tumorigenic;
Endocrine; Skin and appendages(JJIND 67, 75, 81)
ADDITIONAL INFORMATION : NTP ; Not listed, IARC ; Not listed
OSHA; Not listed, ACGIH; Not listed
③= EPA GENETOX PROGRAM 1988, Positive : S cerevisiae gene conversion

12. ECOLOGICAL INFORMATION

BIODEGRADABILITY : Not available
BIOACCUMULATION POTENTIAL : Not available
AQUATIC TOXICITY : Not available
OTHER DATA : Not available

13. DISPOSAL CONSIDERATION

[1] , [3] ; Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber in accordance with all applicable regulations. Any disposal practice must be in compliance with country, local, state, and federal laws and regulations (contact country, local or state environmental agency for specific rules).

[2] , [4] Sodium azide may react with copper or lead plumbing to form explosive compounds. Even though the reagents contain minute quantities of sodium azide, drains should be well flushed with large amount of water when discarding the reagents. Incinerate and dispose of waste in accordance with all applicable regulations. Any disposal practice must be in compliance with country, local, state, and federal laws and regulations(contact country, local or state environmental agency for specific rules).

③ ; *USEPA (RCRA) hazardous waste No.* : P105

14. TRANSPORT INFORMATION

IATA: Not Restricted as the mixture.

③ ; *PROPER SHIPPING NAME* ; Sodium azide
CLASS or DIVISION ; Toxic substances. (Division 6.1)
UN or ID No. ; UN1687

DOT (Department of Transportation) : Not a Hazardous Material for DOT shipping as the mixture.

③ ; *PROPER SHIPPING NAME* ; Sodium azide
HAZARD CLASS ; Toxic materials (Class 6.1)
IDENTIFICATION NUMBER; UN1687

15. REGULATORY INFORMATION

US REGULATIONS :

③ ; *EPA*: CERCLA RQ= 1000 lb, EPCRA TPQ= 500 lb, SARA RQ= 1000 lb
EPCRA section 313 de minimis concentration is 1.0%.

OSHA: TQ= Not listed

TSCA CHIPs, RCRA Haz., CERCLA Haz. Subst., SARA III/302 Extre. Haz. Subst.,
SARA III/313 Tox. Chem., NTP Test. Prog., DOT Haz. Mat., DOT Haz. Sub. and Rep. Quant.,
Mass. Subst. List, New Jers. RTK Haz. Subst. List, Canad. WHMIS IDL 1% conc., Penn.
Haz. Subst. List

①, ②, ④, ⑤; Not listed

TSCA : Use of this product must be restricted to research or analysis for the development of a product in accordance with the Act.

EU REGULATIONS :

SYMBOL : —

R-phrases : —

S-phrases : —

EC index No. : ③= 011-004-00-7, ①, ②, ④, ⑤= Not listed

16. OTHER INFORMATION

No specific notes

The above information is believed to be correct to be the best of our knowledge and information but does not purport to be all inclusive and shall be used only as a guide. This product is intended to be used by expert persons having chemical knowledge and skill, at their own discretion and risk and Wako shall not be held liable for any damage resulting from handling or from contact with the above material.

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