Tecxus Rechargeable

- high efficiency, for devices with high energy requirements
- long lifetime for applications with constant and low energy consumption
- no memory effect, therefore it is not necessary to always fully discharge
- rechargeable up to 1000 times, they are especially enviromental friendly
- contains no traces of mercury or cadmium

AAA (Micro)/HR03 - 600 mAh

Nickel-metal hydride battery (NiMH), 1.2 V
44.5 x 10.5 mm




23522	14112
2 x Blister	4 x Blister

AAA (Micro)/HR03 - 1100 mAh

Nickel-metal hydride battery (NiMH), 1.2 V
44.5 x 10.5 mm




23739	23744
2 x Blister	4 x Blister

AA (Mignon)/HR6 - 2700 mAh

Nickel-metal hydride battery (NiMH), 1.2 V
50.5 x 14.5 mm




23728	23745
2 x Blister	4 x Blister

C (Baby)/HR14 - 4500 mAh

Nickel-metal hydride battery (NiMH), 1.2 V
49.5 x 25.8 mm



23743
1 x Blister

D (Mono)/HR20 - 10000 mAh

Nickel-metal hydride battery (NiMH), 1.2 V
60.9 x 32 mm



23741
1 x Blister

9V Block/6HR61 - 280 mAh

Nickel-metal hydride battery (NiMH), 9 V
48.5 x 26 mm



23754
1 x Blister

tecxus™

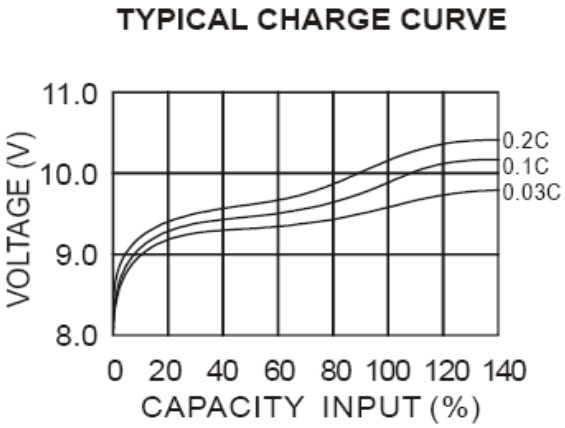
NIMH Size : 9V-280 **Technical Specification** **2016**

Nominal Voltage :	8.40 V
Open Circuit Voltage :	≥ 10.00 V after 16 h/0.1 C charge
Nominal Capacity	280 mAh at 0.2 C discharge to 7.0 V after 16 h/0.1 C charge*
Weight ± 5 g :	52 g
Int. Resistance :	≤800 mΩ at 1 kHz



Charge Characteristics

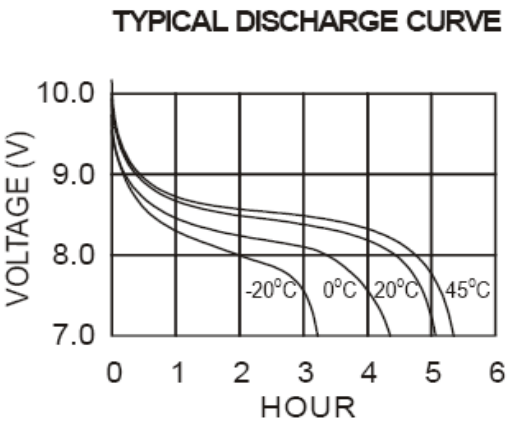
Standard Charge :	15 h x 0.1 C (28 mA)
Fast Charge :	7.5h x 0.2 C (56 mA)
Trickle Charge :	0.03 C (8.4 mA)



Discharge Characteristics

end 7.0 V

0.2 C (56 mA)*	300 min
1.0 C (280 mA)*	55 min



* test condition: 20 ± 5 °C

tecxus™

Performance Characteristics

Storage Temperature :	min -20 °C	max 40 °C
Operating Temperature :	min -10 °C	max 45 °C
Cycle life test :	IEC 61951-2: 2003	> 500 cycles

Cycle life performance (IEC)

Cycle number	Charge	Rest	Discharge
1	0.1 C / 16 h	no	0.25 C 2.33 h
2 to 48	0,25 C / 3.17 h	no	0.25 C / 2.33 h
49	0.25 C / 3.17 h	no	0.25 C to 7.0 V
50	0.1 C / 16 h	1-4 h	0.25 C to 7.0 V

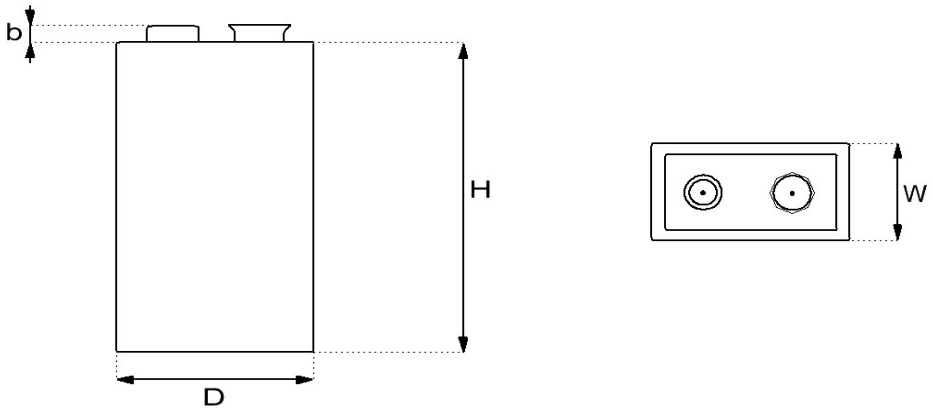
The endurance test is considered complete when two such seccessive cycles give a discharge duration less than 3 h of any 50th cycle

Safety Performance

Drop test	Drop to an concrete floor from a height of 75 cm 4 times after fully charge and discharge	No machanical and electrical abnormality
Short-circuit	Short-circuit for 2 hours with 0,75qmm wire after fully charge and discharge	No explosion
Overcharge test 1	Charge 0.1 C / 16 h, charge 0.1 C / 48 h rest 1 h, discharge 0.1 C to 7.0 V	Discharge time should be > 5 h
Overcharge test 2	Charge 1.0 C (-dV: 5 mV), rest 10 min, charge 1.7 A (-dV: 5 mV) rest 10 min, charge 1.0 C (-dV: 5 mV)	No leakage should occure
Drop-overcharge	Discharge 1.0 C to 7.0 V, discharge 0.2 C to 1.0 V, drop to an concrete floor 3 times, charge 1.0 C / 5 h	No explosion
Drop short-circuit	Charge 0.1 C / 16 h, drop to an concrete floor 3 times, short-circuit for 2 hours with 0.75 mm² wire	No explosion

tecxus™

Dimensions



Height (H) ± 0.25 mm	45.25 mm
Lenght (D) ± 0.25 mm	17.25 mm
Width (W) ± 0.25 mm	26.00 mm
Nipple height (b) ± 0.25 mm	3.00 mm

Don´t dissasemble and don´t mix with used or other battery types.
Don´t dispose to fire.
Remove batteries when not in use for long periods.

tecxus™

Material Safety Data Sheet 2014

Product name: NiMH Rechargable Battery
Chemical system: Nickel Metal Hydride
Designed for Recharge: Yes

I. Company & Contact Information

Wentronic GmbH
Pillmannstraße 12
38112 Braunschweig
Germany

Phone: +49 531 210 58-0
Hours of Operation: 8:30 am to 17:30 pm Mon. through Fri.

II. Indication of ingredients

MATERIAL OR INGREDIENT	PEL (OSHA)	TLV (ACGIH)	%/wt.
Aluminum (CAS# 7429-90-5)	15 mg/m^3 TWA (total dust) 5 mg/m^3 TWA (respirable fraction)	10 mg/m^3 TWA	< 2
Cobalt as cobalt metal (CAS# 7440-48-4) cobalt oxide (CAS# 1306-19-0) cobalt hydroxide (CAS# 21041-93-0)	0.1 mg/m^3 TWA (as Co)	0.02 mg/m^3 TWA (as Co)	2.5-6.0
Lithium Hydroxide (CAS# 1310-65-2)	None established	None established	0-4
Manganese (CAS# 7439-96-5)	5 mg/m^3 Ceiling	0.2 mg/m^3 TWA (as Mn)	< 3
Misc metal including: Lanthanum (CAS# 7439-91-0) Cerium (CAS# 7440-45-1) Neodymium (CAS# 7440-00-8) Praseodymium (CAS# 7440-10-0)	15 mg/m3 TWA (particulates not otherwise regulated-total dust) 5 mg/m^3 TWA (particulates not otherwise regulated-respirable	10 mg/m3 TWA (particulates not otherwise classified-inhalable) 3 mg/m^3 TWA (particulates not otherwise classified-respirable)	< 13
Nickel as nickel hydroxide (CAS# 12054-48-7) nickel oxide (CAS# 1313-99-1) nickel powder (CAS# 7440-02-0)	1 mg/m^3 TWA	1.5 mg/m^3 TWA 0.2 mg/m^3 TWA (as inhalable Ni, insoluble compounds)	30-50

MATERIAL OR INGREDIENT	PEL (OSHA)	TLV (ACGIH)	%/wt.
Potassium Hydroxide (CAS# 1310-58-3)	None established	2 mg/m^3 Ceiling	< 7
Sodium (CAS# 1310-73-	2 mg/m^3 TWA	2 mg/m^3 Ceiling	0-4
Zinc as zinc metal (CAS# 7440-66-6) zinc oxide (CAS# 1314-13-2) zinc hydroxide (CAS# 20427-58-1)	15 mg/m^3 TWA (total dust: zinc oxide) 5 mg/m^3 TWA (respirable fraction: zinc oxide)	10 mg/m^3 TWA (total dust: zinc	< 3

IMPORTANT NOTE: The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful.

III. Fire & explosion hazard data

If fire or explosion occurs when batteries are on charge, shut off power to charger.

In case of fire where nickel metal hydride batteries are present, apply a smothering agent such as METL-X, sand, dry ground dolomite, or soda ash, or flood the area with water. A smothering agent will extinguish burning nickel metal hydride batteries. Water may not extinguish burning batteries but will cool the adjacent batteries and control the spread of fire. Burning batteries will burn themselves out. Virtually all fires involving nickel metal hydride batteries can be controlled with water. When water is used, however, hydrogen gas may evolve. In a confined space, hydrogen gas can form an explosive mixture. In this situation, smothering agents are recommended.

Fire fighters should wear self-contained breathing apparatus. Burning nickel metal hydride batteries can produce toxic fumes including oxides of nickel, cobalt, aluminum, manganese, lanthanum, cerium, neodymium, and praseodymium.

IV. Health hazard data

Under normal conditions of use, the battery is hermetically sealed.

Ingestion: Swallowing a battery can be harmful.
Contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract. If battery or open battery is ingested, do not induce vomiting or give food or drink. Seek medical attention immediately.
Inhalation: Contents of an open battery can cause respiratory irritation. Hypersensitivity to nickel can cause allergic pulmonary asthma. Provide fresh air and seek medical attention.
Skin Contact: Contents of an open battery can cause skin irritation and/or chemical burns. Nickel, nickel compounds, cobalt, and cobalt compounds can cause skin sensitization and an allergic contact dermatitis. Remove contaminated clothing and wash skin with soap and water. If a chemical burn occurs or if irritation persists, seek medical attention.
Eye Contact: Contents of an open battery can cause severe irritation and chemical burns. Immediately flush eyes thoroughly with water for at least 15 minutes, lifting upper and lower lids, until no evidence of the chemical remains. Seek medical attention.

Note: Nickel, nickel compounds, cobalt, and cobalt compounds are listed as possible carcinogens by International Agency for Research on Cancer (IARC) or National Toxicology Program (NTP).

V. Precautions for safe handling and use

Storage: Store in a cool, well ventilated area. Elevated temperatures can result in shortened battery life.

Mechanical Containment: Never seal or encapsulate nickel metal hydride batteries.
Do not obstruct safety release vents on batteries. Encapsulation (potting) of batteries will not allow cell venting and can cause high pressure rupture.
Handling: Accidental short circuit for a few seconds will not seriously affect the battery. However, this battery is capable of delivering very high short circuit currents. Prolonged short circuits will cause high cell temperatures which can cause skin burns. Sources of short circuits include jumbled batteries in bulk containers, metal jewelry, and metal covered tables or metal belts used for assembly of batteries into devices.
Do not open battery. The negative electrode material may be pyrophoric. Should an individual cell from a battery become disassembled, spontaneous combustion of the negative electrode is possible. This is much more likely to happen if the electrode is removed from its metal container. There can be a delay between exposure to air and spontaneous combustion.
Charging: This battery is made to be charged many times. Because it gradually loses its charge over a few months, it is good practice to charge battery before use. Use recommended charger. Improper charging can cause heat damage or even high pressure rupture. Observe proper charging polarity.

WARNING: CHARGE ONLY WITH SPECIFIED CHARGERS ACCORDING TO DEVICE MANUFACTURER'S INSTRUCTIONS. DO NOT OPEN BATTERY, DISPOSE OF IN FIRE OR SHORT CIRCUIT - MAY IGNITE, EXPLODE, LEAK OR GET HOT CAUSING PERSONAL INJURY.

VI. Special protection information

Ventilation Requirements: Not necessary under normal conditions.

Respiratory Protection: Not necessary under normal conditions.

Eye Protection: Not necessary under normal conditions. Wear safety glasses with side shields if handling an open or leaking battery.
Gloves: Not necessary under normal conditions. Use neoprene or natural rubber gloves if handling an open or leaking battery.
Open Battery Storage: Battery should not be opened. Should a cell become disassembled, the electrode should be stored in a fireproof cabinet, away from combustibles.

XIV. Transport Information

NiHM batteries (sometimes referred to as "Dry cell" batteries) are not listed as dangerous goods under the current IATA Dangerous Goods Regulations, ICAO Technical Instructions and the U.S. hazardous materials regulations (49 CFR). These batteries are not subject to the dangerous goods regulations provided they meet the requirements contained in the following special provisions. Special Provision A123 in the current IATA Dangerous Goods Regulations and ICAO Technical Instructions and Special Provision 130 in 49 CFR 172.102 of the U.S. hazardous materials regulations require alkaline batteries are packed in such a way to prevent short circuits or generating a dangerous quantity of heat. In addition, the current IATA Dangerous Goods Regulations and ICAO Technical Instructions require the words "not restricted" and the Special Provision number A123 be provided on the air waybill, when an air waybill is issued.