# SAFETY DATA SHEET

## 1. PRODUCT AND COMPANY IDENTIFICATION

| | |
|---|---|
| **Product Name:** | 100HC, 100HD Mod., 100HD, 100XHC, 101HC, 101HC Mod., 101HC-G, 101HC-O, 101HD, 101HDB, 101HT, 101HWP, 103-CP, 103HD, 117, 117 Mod., 121, 121-G, 121-O, 123, 131, 132-O, 132 Ni, 133, 133-G, 134, 134-G, 135, 143-O, 143-S, 145, 164-O, CM-29, CP2000, CP2001, Multilayer 50, SA Super 20, SA 53, SA Rollface, TW-2106, PR2009, WP2009, WP2001, WP2001-SL |
| **Product Type:** | Composite Wire for Open Arc, Gas Metal Arc, and Submerged Arc Welding |
| **Classification:** | Not specified by AWS |
| **Supplier:** | Stoody Company, 5557 Nashville Road, Bowling Green, KY 42101, USA |
| **Telephone No.:** | (270) 781-9777 or (800) 369-4864 |
| **Emergency No.:** | (800) 424-9300 (CHEMETREC), CHEMTREC (International): +1 703-527-3887 |
| **Website:** | www.stoody.com |
| **Date:** | March 28, 2016 |

## 2. HAZARDS IDENTIFICATION

**Emergency Overview**: This product is not considered hazardous as shipped. Gloves should be worn when handling to prevent contaminating hands with product dust. Avoid inhalation of dust and eye contact with this product. When this product is used with a welding machine in an arc welding process, the most important hazards are radiation, welding fumes, heat, and electrical shock.

**Hazard Classifications**: Not classifiable according to GHS.

**Hazardous Decomposition Products** – Welding fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedure, and electrodes used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coating on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of work area, the quality and the amount of ventilation, the position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities).

When the electrode is consumed, the fume and gas decomposition products generated are different in percent and from the ingredients listed in Section 3. Fumes and gas decomposition products that evolve from welding activity and not the ingredients in the electrode, are important. The concentration of a given fume or gas component may decrease or increase by many times the original concentration in the electrode. Also, new compounds not in the electrodes may form from welding activity. Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials shown in Section 3, plus those from the base metal coatings, etc. as noted above.

Reasonably expected decomposition products from normal use of these products include a complex set of oxides of materials listed in Section 3, as well as carbon monoxide, carbon dioxide, ozone and nitrogen oxides**. The exposure limits for exposure to chromium, nickel, manganese, cobalt, and/or hexavalent chrome may be reached before the general limit for welding fumes (5 mg/m$^3$) is reached.**

The recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample inside the welder's helmet (if worn) or in the worker's breathing zone. See ANSI/AWS F1.1 *"Method for Sampling Airborne Particles Generated by Welding and Allied Processes"* and *"Characterization of Arc Welding Fume"* available from the American Welding Society, 8669 NW 36 #130, Miami, FL 33166.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

| | C | Mn | Si | Cr | Ni | Mo | W | Cu | Nb | V | Ti | B | Zr | Fe | $TiO_2$ | Fluorides |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.045" 101HC-G, 145, 100XHC | 4 – 8 | 1 – 4 | 1 – 3 | 18 – 28 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Balance | <5 | <2 |
| 100HC Mod., 100HD, 101HC Mod., 101HD, 101HDT, CM-29, TW 2106, WP2001 | 4 – 8 | 1 – 4 | 1 – 3 | 24 – 34 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Balance | <5 | <2 |
| 117, 117 Mod., 121, 121-G, 121-O, Multilayer 50, SA 53, SA Rollface | 4 – 7 | 1 – 3 | 1 – 3 | 8 – 18 | -- | 0.2 – 3 | -- | -- | -- | -- | -- | -- | 0.1 – 2 | Balance | <5 | <2 |
| 100HC | 4 – 7 | 1 – 3 | 1 – 3 | 22 – 29 | -- | 0.2 – 3 | -- | -- | -- | -- | -- | -- | 0.1 – 2 | Balance | <5 | <2 |
| 103-CP, 103-HD | 4 – 7 | 3 – 5 | 1 – 3 | 24 – 32 | -- | -- | -- | -- | -- | -- | -- | -- | 0.05 – 2 | Balance | <5 | <2 |
| 101HC-O, 101HC | 4 – 7 | 1 – 3 | 1 – 3 | 16 – 24 | -- | -- | -- | -- | -- | -- | -- | -- | 0.05 – 2 | Balance | <5 | <2 |
| CP2000, CP2001, 131, 134, 134-G, 135 | 2 – 7 | 0.5 – 3 | 1 – 3 | 20 – 30 | -- | 0.5 – 4 | -- | -- | <3 | <3 | -- | <2 | <2 | Balance | <5 | <2 |
| 143-O, 143-S | 4 – 7 | 0.5 – 2 | 1 – 3 | 20 – 28 | -- | -- | -- | -- | 6 – 10 | -- | -- | -- | -- | Balance | <5 | <2 |
| PR2009, 101HDB, WP2009, 101HWP | 4 – 8 | 1 – 3 | 1 – 3 | 20 – 30 | -- | -- | -- | -- | -- | -- | <2 | <2 | <2 | Balance | <5 | <2 |
| 145-S, SA Super 20, WP2001-SL | 4 – 8 | 0.5 – 3 | 1 – 3 | 16 – 26 | - | 4 – 9 | 1 – 6 | -- | <8 | <2 | -- | -- | -- | Balance | <5 | <2 |
| 132-O, 133, 133-G, 133-O | 1 – 4 | 0.5 – 3 | 1 – 4 | 20 – 30 | 2 – 5 | 0.1 – 2 | -- | -- | -- | -- | -- | -- | <2 | Balance | <5 | <2 |
| 132Ni | 1 – 4 | 0.5 – 3 | 1 – 3 | 25 – 35 | 6 – 9 | -- | -- | -- | -- | -- | -- | -- | -- | Balance | <5 | <2 |
| 164-O | 3 – 7 | 0.2 – 2 | 1 – 3 | 25 – 35 | -- | 0.1 – 2 | -- | -- | -- | -- | -- | 0.1 – 2 | -- | Balance | <5 | <2 |
| 123 | 2 – 6 | 1 – 3 | 1 – 3 | 10 – 18 | -- | 1 – 3 | -- | 0.1 – 2 | -- | -- | -- | -- | 0.1 – 2 | Balance | <5 | <2 |
| 0.035" 101HC-G | 2 – 5 | 0.1 – 2 | 1 – 3 | 12 – 20 | -- | -- | -- | -- | -- | -- | -- | 0.1 – 2 | -- | Balance | <5 | <2 |
| 101HT | 4 – 8 | 1 – 3 | 0.5 – 2.5 | 24 – 34 | -- | 0.5 – 1.5 | -- | -- | -- | -- | -- | -- | 0.1 – 2 | Balance | <5 | -- |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| CAS No. | 7782-42-5 | 7439-96-5 | 7440-21-3 | 7440-47-3 | 7440-02-0 | 7439-98-7 | 7440-33-7 | 7440-50-8 | 7440-03-1 | 1314-62-1 | 7440-32-6 | 7440-42-8 | 7440-67-7 | 1309-37-1 | 13463-67-7 | 7789-75-5 |
| OSHA PEL ($mg/m^3$) | 5 (resp) 15 (dust) mppcf | (C) 5 (fume) | 5 (resp) 15 (dust) | 0.5 0.5 $\mu g/m^3$ (Cr VI) | 1 | 15 (dust) | -- | 0.1 (fume) 1 (dust) | -- | (C) 0.1 ($V_2O_5$ fume) (C) 0.5 ($V_2O_5$ resp) | -- | 15 (oxide dust) | 5 STEL 10 | 10 (fume) | 15 (dust) | 2.5 |
| ACGIH TLV ($mg/m^3$) | 2 (resp) | 0.2 (resp) 0.1 (inhalable) | -- | -- | 1.5 (inhalable) | 10 (inhalable) 3 (resp) | 10 (soluble) 5 (insoluble) | 0.2 (fume) 1 (dust) | -- | 0.05 (inhalable) | -- | 10 (oxide fume) | 5 | 5 (resp) | 10 | 2.5 |
| NIOSH REL ($mg/m^3$) | 2.5 (resp) | 1 (dust) STEL 3 IDLH 500 | 10 (dust) 5 (resp) | 0.5 (dust) IDLH 250 | 0.015 (dust) IDLH 10 | -- | 5 (dust) STEL 10 | 0.1 (fume) 1 (dust) IDLH 100 | -- | (C) 0.05 (fume & dust) (15 mins.) IDLH 35 | -- | 10 (oxide dust) | 5 (dust) STEL 10 IDLH 50 | 5 (dust) IDLH 2500 | -- | 2.5 (dust) IDLH 25 |

C = Ceiling
STEL = Short Term Exposure Limit
IDLH = Immediately Dangerous to Life and Health
Mppcf = mppcf X 35.3 = million particles per cubic meter = particles per cc
Resp = Respirable

## 4. FIRST AID MEASURES

| | |
|---|---|
| Inhalation: | If breathing has stopped, perform artificial respiration and obtain medical assistance immediately! If breathing is difficult, provide fresh air and call physician. |
| Eye contact: | For radiation burns due to arc exposure, see physician. To remove foreign objects or for eye irritation, flush with water for at least fifteen minutes. If irritation persists, obtain medical assistance. |
| Skin contact: | For skin burns from arc radiation, promptly flush with cold water. Get medical attention for burns or irritations that persist. To remove dust or particles, wash with mild soap and water. |
| Electric shock: | Disconnect and turn off the power. Use a nonconductive material to pull victim away from contact with live parts or wires. If not breathing, begin artificial respiration, preferably mouth-to-mouth. If no detectable pulse, begin Cardio Pulmonary Resuscitation (CPR). Immediately call a physician. |
| General: | Move to fresh air and call for medical aid. |

## 5. FIRE FIGHTING MEASURES

**Suitable Extinguishing Media:** Follow all Hot Work procedures. Welding arcs and sparks can ignite combustible and flammable materials. Use the extinguishing media recommended for the burning materials and fire situation such as water, alcohol-resistant foam, dry chemical or carbon dioxide, etc.
**Unsuitable Extinguishing Media:** Not applicable.
**Specific Hazards Arising from Fire:** Welding arcs and sparks can ignite combustible and flammable materials. Welding activity can produce oxides, manganese and manganese oxides, and iron oxides. See American National Standard Z49.1: Safety in Welding and Cutting published by the American Welding Society.
**Recommended Protective Equipment:** Wear complete protective clothing and self-contained breathing apparatus as fumes or vapors may be harmful.

## 6. ACCIDENTAL RELEASE MEASURES

Solid objects may be picked up and placed into a container. Liquids or pastes should be scooped up and placed into a container. Wear proper protective equipment while handling these materials. Do not discard as refuse. Ensure collected materials are placed in appropriate containers, particularly if still hot.

Personal precautions: Refer to Section 8.

Environmental precautions: Refer to Section 13.

## 7. HANDLING AND STORAGE

**Handling:** Handle with care to avoid stings and cuts. Wear gloves when handling welding consumables. Avoid exposure to dust. Do not ingest. Some individuals can develop an allergic reaction to certain materials. Retain all warning and identity labels.

**Storage:** Keep separate from chemical substances like acids and strong bases, which could cause chemical reactions.

## 8. EXPOSURE CONTROL/PERSONAL PROTECTION

Avoid exposure to welding fumes, radiation, spatter, electric shock, heated materials, and dust.

**Engineering measures:** Ensure sufficient ventilation, local exhaust, or both, to keep welding fumes and gases away from welding operator breathing zone and generally occupied areas. Keep working place and protective clothing clean and dry. Train welders to avoid contact with live electrical parts and insulate conductive parts. Check condition of protective clothing and equipment on a regular basis.

**Personal protective equipment:** Use respirator or air supplied respirator when welding in a confined space, or where local exhaust or ventilation is not sufficient to keep exposure values within safe limits. Use special care when welding painted or coated steels since hazardous substances from the coating may be emitted. Wear hand, head, eyes, ear, and body protection like welder's gloves, helmet or face shield with filter lens, safety boots, apron, arm and shoulder protection. Keep protective clothing clean and dry.

**EU Specification EN 12477: Gloves for Welders** Type A. For eye protection, use a welder's helmet compliant to EN 379 with filter shade 9 or greater. Clothing should meet Class 2 requirements.

Use industrial hygiene monitoring equipment to ensure that human exposure does not exceed applicable published exposure limits. For information about welding fume analysis refer to Section 10.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| **Appearance:** | Cored wire, color grey/black, with core containing solid metal and non-metal particles |
| **Odor:** | Odorless |
| **Odor threshold:** | Not available |
| **pH:** | Not available |
| **Melting point:** | >1000°F (>500°C) |
| **Boiling point:** | Not available |
| **Flash point:** | Not available |
| **Evaporation rate:** | Not available |
| **Flammability:** | Not available |
| **Flammability limits:** | Not available |
| **Vapor pressure:** | Not available |
| **Vapor density:** | Not available |
| **Relative density:** | 0.18 – 0.33 lb/cu ft. (5 – 9 g/cc) |
| **Solubility:** | Insoluble in water |
| **Octanol-water partition coefficient:** | Not available |
| **Bioconcentration factor:** | Not available |
| **Auto-ignition temperature:** | Not available |
| **Decomposition temperature:** | Not available |
| **Viscosity:** | Not available |

## 10. STABILITY AND REACTIVITY

**General:** These products are only intended for normal welding purposes.

**Chemical Stability:** These products are stable under normal conditions. No stabilizers are required.

**Reactivity:** Contact with chemical substances like acids or strong bases could cause generation of gas.

**Other:** When these products are used in a welding process, hazardous decomposition products would include those from the volatilization, reaction or oxidation of the materials listed in Section 3 and those from the base metal and coating.

The rate of fumes generated from arc welding varies with wire size and welding process parameters but is generally no more than 10 g/min. Fumes from these products may contain compounds of the following chemical elements: Al, B, C, Ca, Co, Cr, Cu, F, Fe, K, Mn, Mo, N, Na, Nb, O, Si, Ti, V, W, and Zr.

Refer to applicable exposure limits for fume compounds, including those exposure limits for fume compounds found in Section 3. A significant amount of the chromium in the fumes can be hexavalent chromium, which has a very low exposure limit in some countries. Manganese and nickel also have low exposure limits, in some countries that may be easily exceeded.

Reasonably expected gaseous products would include carbon oxides, nitrogen oxides and ozone. Air contaminates around the welding area can be affected by the welding process and influence the composition and quantity of fumes and gases produced.

**Fume Generation Analysis** – Fume generation and fume analysis data, including hexavalent chrome content is available for a range of products and may be obtained by sending a request in writing or sending us an inquiry on the Stoody Company web page (www.stoody.com).

## 11. TOXICOLOGICAL INFORMATION

The wire product as sold and distributed is not expected to cause hazardous exposures. During welding activity, the likely routes of exposure could include ingestion, skin, eyes but most importantly by inhalation of welding fumes and dust. Inhalation of welding fumes and gases can be dangerous to your health. Classification of welding fume is difficult because of site specific factors such as varying base materials, coatings, air contamination, and processes. The International Agency for Research on Cancer has classified welding fumes as possibly carcinogenic to humans (Group 2B).

Acute toxicity: Over exposure to welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness or irritation of the nose, throat, or eyes.

Chronic Toxicity: Overexposure to welding fumes may affect pulmonary function. Prolonged inhalation of nickel and chromium compounds above safe exposure limits can cause cancer. Overexposure to manganese and manganese compounds above safe exposure limits can cause irreversible damage to the central nervous system, including the brain, symptoms of which may include slurred speech, lethargy, tremor, muscular weakness, psychological disturbances, and spastic gait. Prolonged inhalation of titanium dioxide above safe exposure limits can cause cancer. Inhalable quartz is a respiratory carcinogen; however, the process of welding converts crystalline quartz to the amorphous from which is not considered to be a carcinogen.

## 12. ECOLOGICAL INFORMATION

Welding consumables and materials could degrade/weather into compounds originating from the consumables or from the materials used in the welding process. Avoid exposure to conditions that could lead to accumulation in soils or ground water.

Nickel powder is harmful for the environment, harmful to aquatic organisms, and may cause long term adverse effects in the aquatic environment. The biological concentration factors, BCF, of components of these wires that may be present are chromium 200; manganese 59052; and iron 140000.

## 13. DISPOSAL CONSIDERATIONS

Discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with international, federal, and local regulations. Use recycling procedures if available.

USA RCRA: Unused products or product residue containing chromium could be considered hazardous waste if discarded. Assess for the applicability of RCRA ID characteristic Toxic Hazardous Waste D007 (TCLP).

Residues from welding consumables and processes could degrade and accumulate in soils and ground water. Welding slag from these products typically contain mainly the following components originating from these wires: Al, B, C, Ca, Co, Cr, Cu, F, Fe, K, Mn, Mo, N, Na, Nb, O, Si, Ti, V, W, and Zr.

## 14. TRANSPORT INFORMATION

**UN #**: Welding wires and rods are not classified as dangerous goods and have no UN number.

**UN proper shipping name**: There is no proper shipping name.

**Transport hazard class**: There is no transport hazard and are not classified as dangerous goods for transportation.

**Packing Group #**: Not applicable.

**Environmental hazards**: Welding rods and wire are not environmentally hazardous according to the criteria of the UN Model Regulations (as reflected in the IMDG Code, ADR, RID and AND) and/or a marine pollutant to the IMDG Code.

**Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code**: Not applicable as transported in package form.

## 15. REGULATORY INFORMATION

Read and understand the manufacturer's instructions, your employer's safety practices, and the health and safety instructions on the label. Observe any federal and local regulations. Take precautions when welding and protect yourself and others.

WARNING: Welding fumes and gases are hazardous to your health and may damage lungs and other organs. Use adequate ventilation.

ELECTRIC SHOCK can kill.

ARC RAYS and SPARKS can injure eyes and burn skin.

Wear correct hand, head, eye, and body protection.

**Canada:** Not classifiable in product form.

Canadian Environmental Protection Act (CEPA): All constituents of these products are on the Domestic Substance List (DSL).

**USA:** Under the OSHA Hazard Communication Standard, these products are considered hazardous.

These products contain or produce a chemical known to the state of California to cause cancer and birth defects (or other reproductive harm). (California Health and Safety Code § 25249.5 et seq.)

United States EPA Toxic Substance Control Act: All constituents of these products are on the TSCA inventory list or are excluded from listing.

**CERCLA/SARA Title III**

Reportable Quantities (RQs) and or Threshold Planning Quantities (TPQs):

Product comprises of metallic and possibly non-metallic solid particles. Releases in excess of RQs are not considered feasible.

**Section 311 Hazard Class**

As shipped: Immediate In use: Immediate delayed

**EPCRA/SARA Title III 313 Toxic Chemicals**

The following metallic constituents are listed in SARA 313 "Toxic Chemicals" and are potentially subject to annual SARA 313 reporting: Chromium, Manganese, Nickel. See Section 3 for weight percent.

## 16. OTHER INFORMATION

This Safety Data Sheet has been revised due to requirements of CLP/GHS Classification. This SDS supersedes any earlier created version.

Refer to ESAB "Welding and Cutting – Risks and Measures", F52-529 "Precautions and Safe Practices for Electric Welding and Cutting" and F2035 "Precautions and Safe Practices for Gas Welding, Cutting and Heating" available from ESAB, and to:

USA: American National Standard Z49.1 "Safety in Welding and Cutting", ANSI/AWS F1.5 "Methods for Sampling and Analyzing Gases from Welding and Allied Processes", ANSI/AWS F1.1 "Method for Sampling Airborne Particles Generated by Welding and Allied Processes", AWS F3.2M/F3.2 "Ventilation Guide for Weld Fume", American Welding Society, 8669 NW 36th St #130, Miami, FL 33166. Safety and Health Fact Sheets available from AWS at www.aws.org.

OSHA Publication 2206 (29 C.F.R. 1910), U.S. Government Publishing Office, tel. 1-866-512-1800.

American Conference of Governmental Hygienists (ACGIH), Threshold Limit Values and Biological Exposure Indices, 1330 Kemper Meadow Drive, Cincinnati, OH 45240, USA.

NFPA 51B "Standard for Fire Prevention During Welding, Cutting and Other Hot Work" published by the National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169.

UK: WMA Publication 236 and 237, "Hazards from Welding Fume", "The arc welder at work, some general aspects of health and safety".

Germany: Unfallverhütungsvorschrift BGV D1, "Schweißen, Schneiden und verwandte Verfahren".

Canada: CSA Standard CAN/CSA-W117.2-01 "Safety in Welding, Cutting and Allied Processes".

These products have been classified according to the hazard criteria of the CPR and the SDS contains all the information required by CPR.

Stoody requests the users of these products to study this Safety Data Sheet (SDS) and become aware of product hazards and safety information. To promote safe use of these products a user should:

- Notify its employees, agents, and contractors of the information on this SDS and any product hazards/safety information.
- Furnish this same information to each of its customers for these products.
- Request such customers to notify employees and customers for the same product hazards and safety information.

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