136-027

SAFETY DATA SHEET

This Safety Data Sheet complies with Regulation (EC) No 1907/2006, 1272/2008, ISO 11014-1 and ANSI Z400.1

Dual Shield 7100 Ultra

Issued: 2016-07-30

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name	Dual Shield 7100 Ultra

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use	Arc Welding

1.3. Details of the supplier of the safety data sheet

Supplier	ESAB DENTON
Street address	2800 Airport Road Denton, TX 76207
Telephone	1-800-372-2123
Email	sds.esab@esab.se
Web site	www.esab.com

ESA

248000267
248005035
248000622
248000044
248000010
248000028

1.4. Emergency telephone number

Emergency phone number	1-800-372-2123
Available outside office hours	No

Other

Classification: AWS A5.20; E71T-1C-DH8/T-9CDH8; E71T-1M-DH8/T-9MDH8
AWS A5.36; E71T1-C1A2-CS1-DH8; E71T1-M21A2-CS1-DH8

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Description	This product is not classified as hazardous according to applicable GHS hazard classification criteria as required and defined in OSHA Hazard Communication Standard (29CFR Part 1910.1200).

2.2. Label elements

More information	This product does not require labeling.

2.3. Other hazards

This product contains titanium dioxide which is possibly carcinogenic. This product contains cryolite which is classified as toxic and dangerous for the environment. This product contains quartz, but normally not in an inhalable fraction. Quartz can cause silicosis and may cause cancer. Avoid eye contact or inhalation of dust from this product. Skin contact is normally no hazard but should be avoided to prevent possible allergic reactions. Persons with a pacemaker should not go near welding or cutting operations until they have consulted their doctor and obtained information from the manufacturer of the device.
When this product is used in a welding process, the most important hazards are welding fumes, heat, radiation and electric shock.
Fumes: Overexposure to welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness or irritation of the

nose, throat or eyes. Chronic overexposure to welding fumes may affect pulmonary function. 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.
Heat: Spatter and melting metal can cause burn injuries and start fires.
Radiation: Arc rays can severely damage eyes or skin.
Electricity: Electric shock can kill.

Other

Emergency Overview: Metal wires in varying colors. This product is normally not considered hazardous when transported. Gloves should be worn when handling to prevent cuts and abrasions.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical name	***CAS No.*** ***EC No.*** ***REACH No.***	***Concentration***	***Classification***	***R-phrase*** ***H-phrase***
Iron	7439-89-6 231-096-4 01-2119462838 - 24	>60%	- -	- -
Titanium oxide	13463-67-7 236-675-5 -	5 - 10%	- -	- -
Manganese	7439-96-5 231-105-1 01-2119449803 - 34	1 - 5%	- -	- -
Quartz	14808-60-7 238-878-4 -	0,5 - 1,5%	- STOT RE 1	- H372
Magnesium	7439-95-4 231-104-6 -	0,1 - 1%	- -	- -
Aluminum	7429-90-5 231-072-3 -	<0,5%	- -	- -
Aluminum oxide	1344-28-1 215-691-6 -	<0,5%	- -	- -
Cryolite	15096-52-3 239-148-8 -	<0,5%	- Aquatic Chronic 2, STOT RE 1, Acute Tox. 4 - inhalation	- H332, H372, H411
Iron oxide	1309-37-1 215-168-2 -	<0,5%	- -	- -
Potassium oxide	12136-45-7 235-227-6 -	<0,5%	- -	- -
Silicon	7440-21-3	<0,5%	-	-

	231-130-8 -		-	-
Sodium oxide	12401-86-4 215-208-9 -	<0,5%	- -	- -
Zirconium oxide	1314-23-4 215-227-2 -	<0,5%	- -	- -

Product based on This product is a preparation of flux-cored wire.

SECTION 4: First aid measures

4.1. Description of first aid measures

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). call emergency physician to the scene of the accident. Call a physician immediately.

Inhalation If breathing has stopped, perform artificial respiration and obtain medical assistance immediately! If breathing is difficult, provide fresh air and call physician.

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.

Eye contact For radiation burns due to arc flash, see physician. To remove dusts or fumes flush with water for at least fifteen minutes. If irritation persists, obtain medical assistance.

4.2. Most important symptoms and effects, both acute and delayed

Not applicable

4.3. Indication of any immediate medical attention and special treatment needed

Not applicable

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media No specific recommendations for welding consumables. Welding arcs and sparks can ignite combustible and flammable materials. Use the extinguishing media recommended for the burning materials and fire situation.

5.2. Special hazards arising from the substance or mixture

Not applicable

5.3. Advice for firefighters

Special protective equipment for fire-fighters Wear self-contained breathing apparatus as fumes or vapors may be harmful.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Refer to Section 8.

6.2. Environmental precautions

Refer to Section 13.

6.3. Methods and material for containment and cleaning up

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.

6.4. Reference to other sections

Refer to Section 8 and Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Preventive handling precautions

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.

7.2. Conditions for safe storage, including any incompatibilities

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

7.3. Specific end use(s)

Arc Welding

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits

Use industrial hygiene monitoring equipment to ensure that exposure does not exceed applicable national exposure limits. The following limits can be used as guidance. Unless noted, all values are for 8 hour time weighted averages (TWA). For information about welding fume analysis refer to Section 10.

National occupational exposure limits

Ingredient	*CAS no.*	*EC No.*	*Exposure limit mg/m3-ppm*		*Short-term exposure limit mg/m3-ppm*		*Ceiling exposure limit mg/m3-ppm*		*Remark*	*Source*	*Year*
Aluminum	7429-90-5	231-072-3	5	-	-	-	-	-	Respirable fraction	OSHA	2016
Aluminum oxide	1344-28-1	215-691-6	5	-	-	-	-	-	Respirable fraction	OSHA	2016
Cryolite	15096-52-3	239-148-8	2,5	-	-	-	-	-	as F	OSHA	2016
Iron	7439-8	231-0	-	-	-	-	-	-	No PEL	OSHA	2016

	9-6	96-4									
Iron oxide	1309-37-1	215-168-2	10	-	-	-	-	-	Fume (as Fe)	OSHA	2016
Manganese	7439-96-5	231-105-1	-	-	-	-	5	-	as Mn	OSHA	2016
Silicon	7440-21-3	231-130-8	5	-	-	-	-	-	Respirable fraction	OSHA	2016
Quartz	14808-60-7	238-878-4	-	-	-	-	-	-	10 mg/m3/%SiO2+2, Respirable dust (quartz, tripoli)	OSHA	2016
Titanium oxide	13463-67-7	236-675-5	15	-	-	-	-	-	Total dust	OSHA	2016
Zirconium oxide	1314-23-4	215-227-2	5	-	-	-	-	-	as Zr	OSHA	2016
Magnesium	7439-95-4	231-104-6	-	-	-	-	-	-	No PEL	OSHA	2016
Potassium oxide	12136-45-7	235-227-6	-	-	-	-	-	-	No PEL	OSHA	2016
Sodium oxide	12401-86-4	215-208-9	-	-	-	-	-	-	No PEL	OSHA	2016
Aluminum oxide	1344-28-1	215-691-6	15	-	-	-	-	-	Total dust	OSHA	2016
Quartz	14808-60-7	238-878-4	-	-	-	-	-	-	30 mg/m3/%SiO2+2, Total dust	OSHA	2016
Aluminum	7429-90-5	231-072-3	15	-	-	-	-	-	Total dust	OSHA	2016
Silicon	7440-21-3	231-130-8	15	-	-	-	-	-	Total dust	OSHA	2016

8.2. Exposure controls

Not applicable

Other

Avoid exposure to welding fumes, radiation, spatter, electric shock, heated materials and dust. Train welders to avoid contact with live electrical parts and insulate conductive parts.

Ventilation

Ensure sufficient ventilation, local exhaust, or both, to keep welding fumes and gases from breathing zone and general area. Use special care when welding painted or coated steels since hazardous substances from the coating may be emitted. Use respirator or air supplied respirator when welding or brazing in a confined space, or where local exhaust or ventilation is not sufficient to keep exposure values within safe limits.

Personal protective equipment

Wear hand, head, eyes, ear and body protection like welders gloves, helmet or face shield with filter lens, safety boots, apron, arm and shoulder protection. Keep protective clothing clean and dry. Check condition of protective clothing and equipment on a regular basis.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Steel wire
Appearance, colour	Varying color
Appearance, physical state	Solid
Auto-ignition temperature	Not applicable
Decomposition temperature	No data available
Evaporation rate	Not applicable
Explosive properties	Not applicable
Flammability (solid, gas)	Not applicable
Flash point	Not applicable
Initial boiling point and boiling range	No data available
Melting point	>1000°C / >1800°F
Melting point / freezing point	Not applicable
Odour	Not applicable
Odour treshold	Not applicable
Oxidising properties	Not applicable
Partition coefficient: n-octanol / water	Not applicable
pH	Not applicable
pH value	Not applicable
Relative density	No data available
Solubility	No data available
Upper / lower flammability or explosive limits	No data available
Vapour density	Not applicable
Vapour pressure	Not applicable
Viscosity	Not applicable
Volatility	Not applicable

9.2. Other information

Not applicable

SECTION 10: Stability and reactivity

10.1. Reactivity

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

10.2. Chemical stability

Chemical stability	This product is stable under normal conditions.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	Not applicable

10.4. Conditions to avoid

Conditions to avoid	This product is only intended for normal welding purposes.

10.5. Incompatible materials

Incompatible materials	Not applicable

10.6. Hazardous decomposition products

Hazardous decomposition products	When this product is 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 amount of fumes generated from this product varies with welding parameters and dimensions, but is generally no more than 5 to 15 g/kg consumable. Fumes from this product may contain compounds of the following chemical elements: Fe, O, Mn, Zr, F, Na, Si, K, Al, Mg, Ti. The rest is not analyzed, according to available standards.

Other

Refer to applicable national exposure limits for fume compounds, including those exposure limits for fume compounds found in Section 8.
Manganese has a low exposure limit, in some countries, that may be easily exceeded.
Reasonably expected gaseous products would include carbon oxides, nitrogen oxides and ozone. Air contaminants around the welding area can be affected by the welding process and influence the composition and quantity of fumes and gases produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Information on toxicological effects	Inhalation of welding fumes and gases can be dangerous to your health. Classification of welding fumes is difficult because of 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	Overexposure to welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness or irritation of the nose, throat or eyes.
skin corrosion/irritation	Not applicable

serious eye damage/irritation	Not applicable
Respiratory/skin sensitization	Not applicable
germ cell mutagenicity	Not applicable
Genotoxicity	Not applicable
carcinogenicity	Not applicable
Repeated dose toxicity	Not applicable
reproductive toxicity	Not applicable
STOT-single exposure	Not applicable
STOT-repeated exposure	Not applicable
Aspiration hazard	Not applicable

Other

Long term effect	Chronic toxicity: Overexposure to welding fumes may affect pulmonary function. 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 form which is not considered to be a carcinogen.

SECTION 12: Ecological information

12.1. Toxicity

Not applicable

12.2. Persistence and degradability

Not applicable

12.3. Bioaccumulative potential

Not applicable

12.4. Mobility in soil

Not applicable

12.5. Results of PBT and vPvB assessment

Not applicable

12.6. Other adverse effects

Not applicable

Other

Welding consumables and materials could degrade/weather into components 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 groundwater. This product contains cryolite, which is classified by European Council Directive 67/548/EEC, as toxic to aquatic organisms and may cause long-term adverse effects in the aquatic environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal considerations

Discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with federal and local regulations. Use recycling procedures if available.
USA RCRA: This product is not considered hazardous waste if discarded.
Residues from welding consumables and processes could degrade and accumulate in soils and groundwater. Welding slag from this product typically contain mainly the following components originating from the powder filling of the flux cored wire: Fe, O, Mn, Zr, F, Na, Si, K, Al, Mg, Ti.

SECTION 14: Transport information

14.1. UN number

Not applicable

14.2. UN proper shipping name

Not applicable

14.3. Transport hazard class(es)

Not applicable

14.4. Packing group

Not applicable

14.5. Environmental hazards

Not applicable

14.6. Special precautions for user

Not applicable

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

Not applicable

SECTION 15: Regulatory information

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

Other regulations, limitations and legal regulations

Canada: WHMIS classification: Class D; Division 2, Subdivision A - Canadian Environmental Protection Act (CEPA): All constituents of these products are on the Domestic Substance List (DSL).

USA: This product contains or produces a chemical known to the state of California to cause cancer and birth defects (or other reproductive harm). (California Health & Safety Code § 25249.5 et

seq.)
United States EPA Toxic Substance Control Act: All constituents of this product 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 is a solid solution in the form of a solid article. Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center and to your Local Emergency Planning Committee.
Section 311 Hazard Class - As shipped: Immediate In Use: Immediate delayed
EPCRA/SARA Title III Toxic Chemicals: The following metallic components are listed as SARA 313 "Toxic Chemicals" and potential subject to annual SARA 313 reporting. See Section 3 for weight percent. Manganese: 1.0% de minimis concentration

15.2. Chemical safety assessment

Chemical safety assessment	No

Other

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.

SECTION 16: Other information

Changes to previous revision	This Safety Data Sheet has been revised due to modifications to Sections 1-16.
References to key literature and data sources	Refer to ESAB "Welding & 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: Contact ESAB at www.esabna.com or 1-800 ESAB-123 if you have any questions about this SDS. 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", AWSF3.2M/F3.2 "Ventilation Guide for Weld Fume", American Welding Society, 550 North Le Jeune Road, Miami Florida 33135. Safety and Health Fact Sheets available from AWS at www.aws.org. USA: OSHA Publication 2206 (29 C.F.R. 1910), U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 USA: American Conference of Governmental Hygienists (ACGIH), Threshold Limit Values and Biological Exposure Indices, 6500 Glenway Ave., Cincinnati, Ohio 45211, USA. 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: Canada: CSA Standard CAN/CSA-W117.2-01 "Safety in Welding, Cutting, and Allied Processes".

This product has been classified according to the hazard criteria of the CPR and the SDS contains all the information required by the CPR.

Phrase meaning

H322 - Harmful if inhaled.
H372 - Causes damage to the lungs through prolonged or repeated exposure by inhalation.
H411 - Toxic to aquatic life with long lasting effects.

Other

Additional information

ESAB requests the users of this product to study this Safety Data Sheet (SDS) and become aware of product hazards and safety information. To promote safe use of this product 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 this product.

-request such customers to notify employees and customers for the same product hazards and safety information.

The information herein is given in good faith and based on technical data that ESAB believes to be reliable. Since the conditions of use is outside our control, we assume no liability in connection with any use of this information and no warranty, expressed or implied is given.
Contact ESAB for more information.

136-027

CERTIFICATE OF TYPICAL ANALYSIS

EN 10204 Certificate 2.2

ESAB Part Number	-	248000028
Lot Number	-	10354804
Trade Name	-	DUAL SHIELD®
Trade Type	-	7100 Ultra
Diameter	-	1/16

DUAL SHIELD 7100 ULTRA

Classification:

Classification:	E71T-1CH8/T-1MH8/T-9CH8/T-9MH8
-	E71T-9C-DH8/T-9M-D
-	E71T1-M21-CS1-DH8
-	E71T1-C1A-DH8
Material conforms to:	AWS A5.20, ASME SFA 5.20
-	AWS A5.36, ASME SFA 5.36

	Chemistry Analysis:	Chemistry Spec:	Add'l Chemistry:
Carbon	0.030 %	0.000 - 0.120 %	0.030 %
Manganese	1.35 %	0.00 - 1.75 %	1.43 %
Silicon	0.54 %	0.00 - 0.90 %	0.58 %
Phosphorus	0.013 %	0.000 - 0.030 %	0.015 %
Sulfur	0.011 %	0.000 - 0.030 %	0.009 %
Chromium	0.04 %	0.00 - 0.20 %	0.04 %
Nickel	0.01 %	0.00 - 0.50 %	0.01 %
Molybdenum	0.01 %	0.00 - 0.30 %	0.01 %
Vanadium	0.02 %	0.00 - 0.08 %	0.02 %
Copper	0.05 %	0.00 - 0.35 %	0.03 %
Shielding Gas	75% Ar/ 25% CO2	-	100% CO2

Diffusable Hydrogen:

Average Diff H2 (ml/100gr)	3.7
Shielding Gas	75% Ar/ 25% CO2
Average #2 Diff H2 (ml/100gr)	3.0
Shielding Gas	100% CO2

Radiography:

XRAY	Satisfactory

	Tensile Requirement
Condition	As Welded
Minimum Yield (PSI)	58,000
Minimum Yield (MPa)	400
Minimum Tensile (PSI)	70,000
Minimum Tensile (MPa)	480
Minimum Elongation (%)	22.0

	Result 1	Result 2
Condition	As Welded	As Welded
Shielding Gas	75% Ar/ 25% CO2	100% CO2
Yield Strength (PSI)	77,500	73,869

CERTIFICATE OF TYPICAL ANALYSIS

EN 10204 Certificate 2.2

Calculated Yield (MPa)	535	510
Calculated Tensile (PSI)	88,000	83,417
Calculated Tensile (MPa)	607	576
Elongation (%)	26.0	29.0
Reduction of Area (%)	63.9	70.7

	V-Notch Req.:	**Requirement# 2**
Condition	As Welded	As Welded
CVN Temperature (F)	0	-20
CVN Temperature (C)	-18	-29
CVN AW MIN (Ft-lbs)	20	20
CVN AW MIN (Joules)	27	27

	Result 1	**Result 2**	**Result 3**	**Result 4**
Condition	As Welded	As Welded	As Welded	As Welded
CVN TEMP (F)	0	-20	0	-20
FT-LBS	66	69	79	63
CVN TEMP (C)	-18	-29	-18	-29
JOULES	89	94	107	85
Shielding Gas	75% Ar/ 25% CO2	75% Ar/ 25% CO2	100% CO2	100% CO2

Fillet:

Fillet	Satisfactory

This material is manufactured in USA

This material is certified to be free of any mercury.

The ESAB Group is certified to ISO 9001:2015 / ISO 14001:2015 / OHSAS 18001:2007.
Registered under the following certificate numbers:
106973-2011-AQ-SWE-SWEDAC/2006-SKM-AE-1093/2008-SKM-AHSO-143.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification.

The ESAB Group Inc. dba ESAB Welding and Cutting Products certifies that the product listed on this certificate is manufactured from steel that is melted in the USA.
Product Complies with "Buy America"

CERTIFICATE OF TYPICAL ANALYSIS

EN 10204 Certificate 2.2

ESAB Part Number	-	248000044
Lot Number	-	10354806
Trade Name	-	DUAL SHIELD®
Trade Type	-	7100 Ultra
Diameter	-	.045

DUAL SHIELD 7100 ULTRA

Classification:

Classification:	E71T-1CH8/T-1MH8/T-9CH8/T-9MH8
-	E71T-9C-DH8/T-9M-D
-	E71T1-M21-CS1-DH8
-	E71T1-C1A-DH8
Material conforms to:	AWS A5.20, ASME SFA 5.20
-	AWS A5.36, ASME SFA 5.36

	Chemistry Analysis:	Chemistry Spec:	Add'l Chemistry:
Carbon	0.030 %	0.000 - 0.120 %	0.030 %
Manganese	1.35 %	0.00 - 1.75 %	1.43 %
Silicon	0.54 %	0.00 - 0.90 %	0.58 %
Phosphorus	0.013 %	0.000 - 0.030 %	0.015 %
Sulfur	0.011 %	0.000 - 0.030 %	0.009 %
Chromium	0.04 %	0.00 - 0.20 %	0.04 %
Nickel	0.01 %	0.00 - 0.50 %	0.01 %
Molybdenum	0.01 %	0.00 - 0.30 %	0.01 %
Vanadium	0.02 %	0.00 - 0.08 %	0.02 %
Copper	0.05 %	0.00 - 0.35 %	0.03 %
Shielding Gas	75% Ar/ 25% CO2	-	100% CO2

Diffusable Hydrogen:

Average Diff H2 (ml/100gr)	3.7
Shielding Gas	75% Ar/ 25% CO2
Average #2 Diff H2 (ml/100gr)	3.0
Shielding Gas	100% CO2

Radiography:

XRAY	Satisfactory

	Tensile Requirement
Condition	As Welded
Minimum Yield (PSI)	58,000
Minimum Yield (MPa)	400
Minimum Tensile (PSI)	70,000
Minimum Tensile (MPa)	480
Minimum Elongation (%)	22.0

	Result 1	Result 2
Condition	As Welded	As Welded
Shielding Gas	75% Ar/ 25% CO2	100% CO2
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CERTIFICATE OF TYPICAL ANALYSIS

EN 10204 Certificate 2.2

Calculated Yield (MPa)	535	510
Calculated Tensile (PSI)	88,000	83,417
Calculated Tensile (MPa)	607	576
Elongation (%)	26.0	29.0
Reduction of Area (%)	63.9	70.7

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Condition	As Welded	As Welded
CVN Temperature (F)	0	-20
CVN Temperature (C)	-18	-29
CVN AW MIN (Ft-lbs)	20	20
CVN AW MIN (Joules)	27	27

	Result 1	**Result 2**	**Result 3**	**Result 4**
Condition	As Welded	As Welded	As Welded	As Welded
CVN TEMP (F)	0	-20	0	-20
FT-LBS	66	69	79	63
CVN TEMP (C)	-18	-29	-18	-29
JOULES	89	94	107	85
Shielding Gas	75% Ar/ 25% CO2	75% Ar/ 25% CO2	100% CO2	100% CO2

Fillet:

Fillet	Satisfactory

This material is manufactured in USA

This material is certified to be free of any mercury.

The ESAB Group is certified to ISO 9001:2015 / ISO 14001:2015 / OHSAS 18001:2007.
Registered under the following certificate numbers:
106973-2011-AQ-SWE-SWEDAC/2006-SKM-AE-1093/2008-SKM-AHSO-143.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification.

The ESAB Group Inc. dba ESAB Welding and Cutting Products certifies that the product listed on this certificate is manufactured from steel that is melted in the USA.
Product Complies with "Buy America"