



Training Course
2018/19

Plastic Welding Training Course Outline

For more information, please contact:

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Sessions:

Course sessions: Three (3) 8-hour sessions

Instruction Hours: 24

Course Dates: December 3-5, 2018

Course Cost: \$2,340.00 + gst, per trainee

of Trainees: Minimum of 6 trainees

Course Introduction

Wave Control's Plastic Welding Training Course is targeted to plastic welders and engineers – both junior and experienced - who are looking to acquire new, specialized skills and knowledge or refresh and refine their existing skills. Plastic welding is not regulated and has no industry certification; as a result, plastic welding training is an important, specialized gap area of instruction that needs to be filled. This course aims to give trainees the theoretical knowledge of plastics and welding, as well as hands-on experience to equip them with required abilities for working in various areas of plastic welding and fabrication. This course includes hot gas and extrusion welding of sheet as well as butt and socket fusion welding of pipe and welding of thermoplastic liners. All programming aligns with proven CEN and DVS plastic welding standards for customers who sell to companies in the European Union. For companies in the plastic welding industry, having employees skilled with this kind of training is essential to remain competitive, to move forward in plastics innovation, and to enter global markets.

Pre-requisite: Participants in this course should already have the experience and/or certifications/tickets required by their employer to be employed as a welder, technician, engineer, etc.

Instructor Introduction

Larry Rowold is a plastic welding instructor, fabrication trainer and fluoropolymer welder with 30 years of experience in the plastic's field. His work experience has ranged from project management for a consulting company to working for a chemical manufacturing company to line and excavate hazardous waste landfills. Recognizing the need for plastic welding training, Larry has spent the past 20 years providing over 100 plastic welding courses world-wide. His expertise is in hot gas welding, extrusion welding, fusion welding, butt fusion welding, spin welding and electro-fusion welding.

Background of Wave Control

Wave Control provides engineering and fabrication for off-the-shelf and custom engineered fluid handling, chemical injection, metering, monitoring, mixing, and automation systems. Related to all these products and services, and a large focus of what we offer, includes in-house welding, alloy and carbon steel structural and pipe welding with CWB and ABSA certification for B31.3 piping and fittings, as well as plastic welding and fabrication (PFA, PVDF, PP, PVC, HDPE).

A key activity, which is very important to who Wave is as a company, is the training we provide to customers – in the form of both in-field training services to support Alberta-based oil and gas and chemical applications and specialized, more formalized on-site training for customers. Moreover, our expert team not only provides on-site training in better ways to use and maintain a customer's existing equipment, but we also do this with products we custom engineer and fabricate for customers. Our goal and value-add is to ensure we transfer the knowledge and skills customers require so they increase their capacity to integrate and operate their equipment, maintain it, identify when repairs or additional service may be needed, and determine when new and/or different products or services are required. This kind of training is an important part of the technical expertise we offer to customers.

We have a dedicated team of people with different kinds of technical expertise so that we can customize our training services to the needs of our customers. Areas of training instruction include:

- Training customers in understanding customized engineering requirements that best suit their needs, rather than a one-size-fits-all approach, including R&D engineering projects that can lead to new innovations and advancement
- Engineer-in-Training expertise for customers who are seeking ways to build internal capacity and specialized knowledge
- Training in plastics welding and fabrication to meet industry product standards
- In-field training for maintaining and operating all products related to chemical and process control

- Chemical process control, instrumentation and analytical systems training aimed at optimizing operations and production
- Training in manufacturing (on-the-floor) processes and fabrication teams (electrical and instrumentation controls) aimed at improvement and efficiency
- Lunch 'n Learns for engineering teams to increase their understanding of chemical metering

Course Topics

The following topics will be covered in the Plastic Welding Training Course. The outline and schedule for these topics is listed below.

Plastics Theory: This theoretical session will begin with an introduction to the properties and conditions that make plastics weldable. Trainees will analyze two polymer materials that are weldable through heat: thermoplastic and thermoset materials. Health and safety concerns associated with handling these materials will be addressed.

Plastics Welding: In this session, trainees will focus on thermoplastics to discover how this material is malleable through heat, yet intractable through cooling. Theories of other materials such as solvents and gums as weldable material will be debunked.

Hot Gas (air) Welding Tools (hands-on): Trainees will begin sessions where they will receive hands-on instruction in thermoplastic welds using a Leister Diode, Welding Pen, and Triac tools. Through instruction and practice, trainees will learn how thermoplastic materials weld together through 'butt weld' configuration and 'fillet weld' configuration. This task will be completed with and without filler materials.

Welding Polypropylene (hands-on): Trainees will continue sessions of instruction and practice in thermoplastic welds using the company's own specific polypropylene tools so that they can apply their skills and knowledge to their real-time situations. Trainees will learn single 'V' welds, fillet welds, and double 'V' weld configuration.

Course Delivery

In Class/On-Location: In-class sessions will include lectures, discussions, presentations and personal guidance with the instructor. The location of these classes will be provided on the company's site.

Course Assessment

Trainees will be assessed using written and hands-on exercises. Upon completion of the training, a Certificate of Completion for Welding of Thermoplastics will be issued to each trainee.

Course Outline and Schedule

The following are the 3 sessions of this course, with descriptions of the topics covered, participant learning outcomes, and what will be assessed for each session.

Session	Date	Topics Covered	Location	Participant Learning Outcomes	Assessment
Session 1 (8 hours of instruction) 9:00am to 5:30pm with a 30-minute lunch break	Day 1 Dec. 3, 2018	Topics 1.1 -Plastics theory -Plastic welding theory Topic 1.2: -Hands-on plastic welding with hot gas welding tools and welding polypropylene	In-class; lectures, discussions & presentations Within company facility shop	- Gains theoretical understanding of plastics and welding basics - Gains hands- on experience using hot gas welding tools and welding polypropylene with minimal guidance	-Trainees will be assessed on the ability to apply theoretical knowledge to in-house experience through questionnaire activity. - Trainees will be able to properly handle hot gas welding tools safely and efficiently
Session 2 (8 hours of instruction) 9:00am to 5:30pm with a 30-minute lunch break	Day 2 Dec. 4, 2018	Topic 2.1 - Hands-on polypropylene welding Topic 2.2 - Hands on welding on PVC	Within company facility shop	-Gains experience handling polypropylene welding tools to apply single V, double V, and fillet welds	-Trainees will be assessed on ability to complete polypropylene welding efficiently through a timed activity
Session 3 (8 hours of instruction) 9:00am to 5:30pm with a 30-minute lunch break	Day 3 Dec. 5, 2018	Topic 3.1 - Hands-on hot gas welding and extrusion welding Topic 3.2 - Extrusion welding - Theoretical review	Within company facility shop	-Gains experience handling hot gas and extrusion welding tools to complete 'butt' welds an 'fillet' welds -Incorporates theoretical knowledge into in-house assignments	Trainees will be assessed on their overall comprehension and application of plastic welding through a summative written test and timed in-house task(s)
Total Instructional / Training Hours: 24					