

WeldPulse[®]

Welding Procedure Ready



An all-in-
one welding
software



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Short intro

WeldPulse[®] Arc Edition is an all-in-one package for welding in petrochemical industries. Arc Edition is specifically designed for companies in order to manage welding procedures and welders, enabling engineers to extract and store welding data along with taking day-to-day welding decisions. It helps in taking welding decisions and provides you a competitive edge in your welding career.

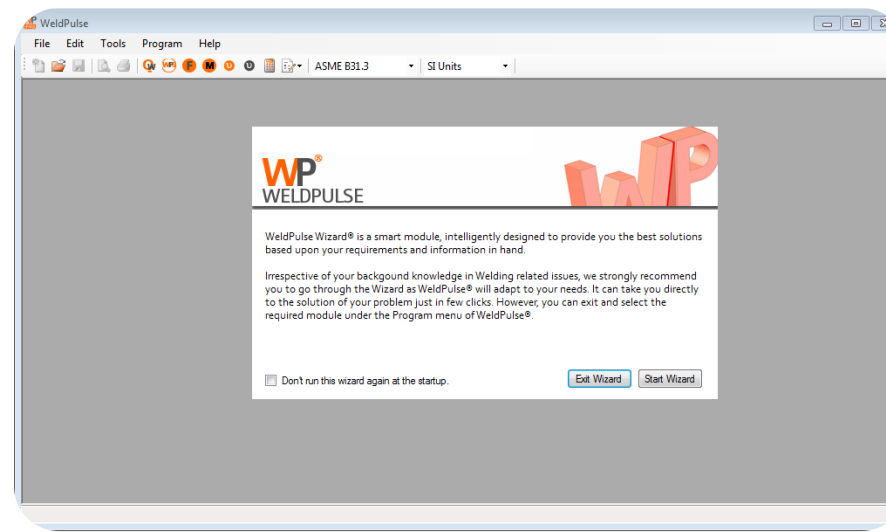
"WeldPulse Splash Screen"



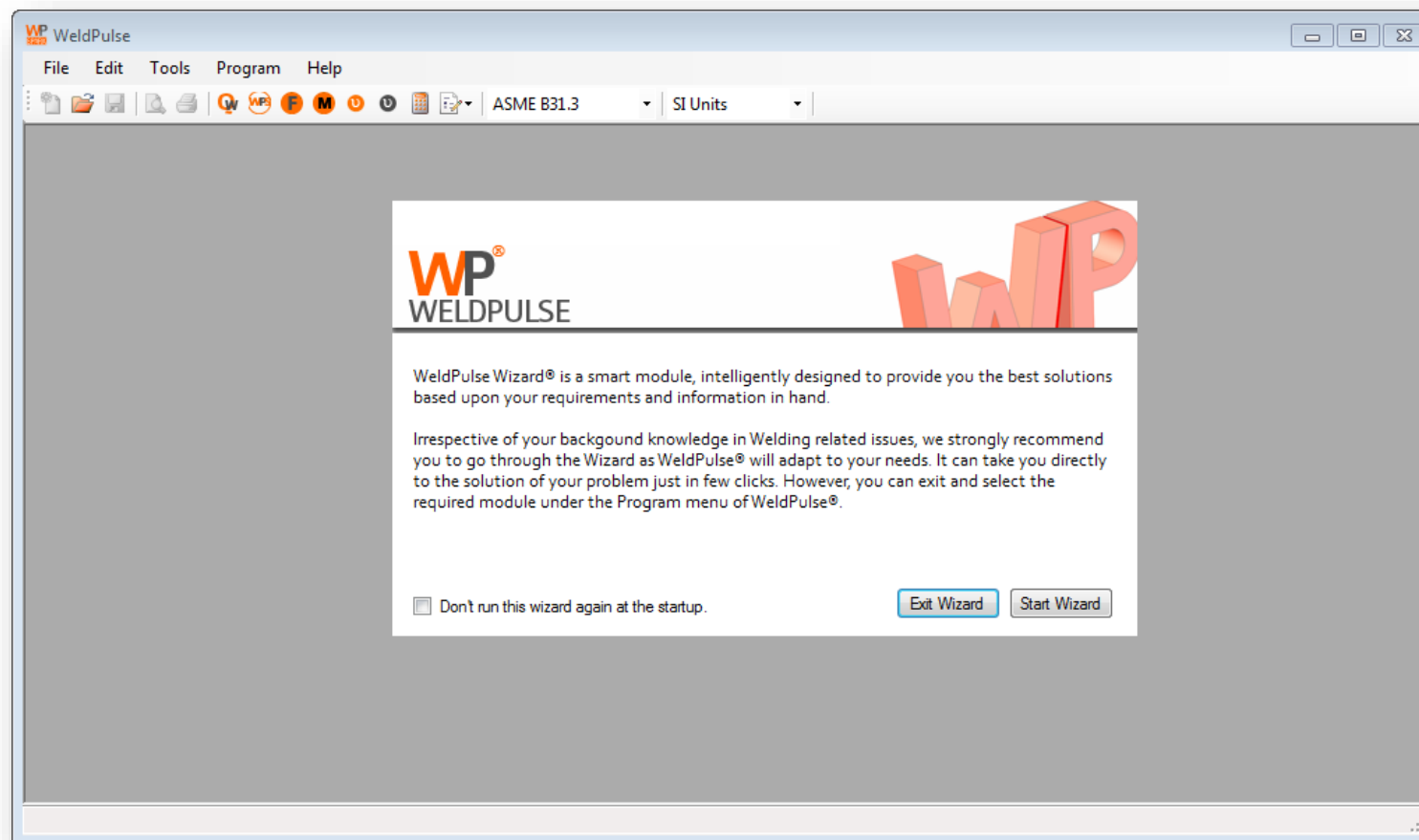
WeldPulse Wizard[®]

WeldPulse Wizard[®] is designed to enable user setting up his welding profile when the program gets a first run. It also facilitates in getting the right module according to the needs.

It helps the user in customizing the program according to his skill level and needs.



When you run WeldPulse[®] the following window appears:



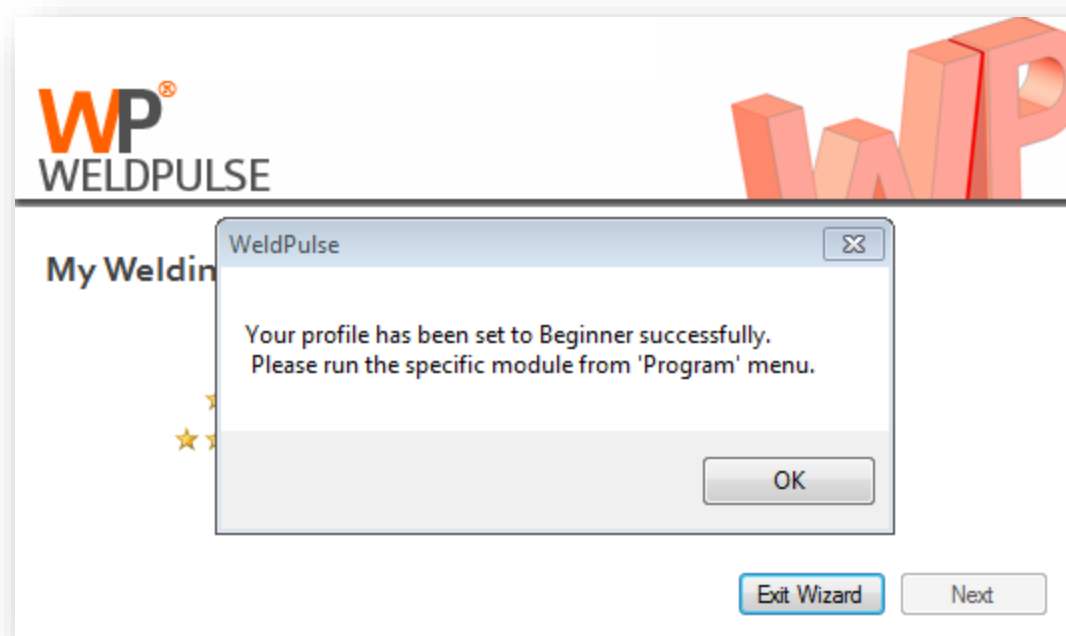
When you click **Next**, it takes your welding profile



Profile settings customizes the inputs and results suiting your experience level in welding. Therefore, it is recommended to set your profile.



Following window appears after setting the profile:

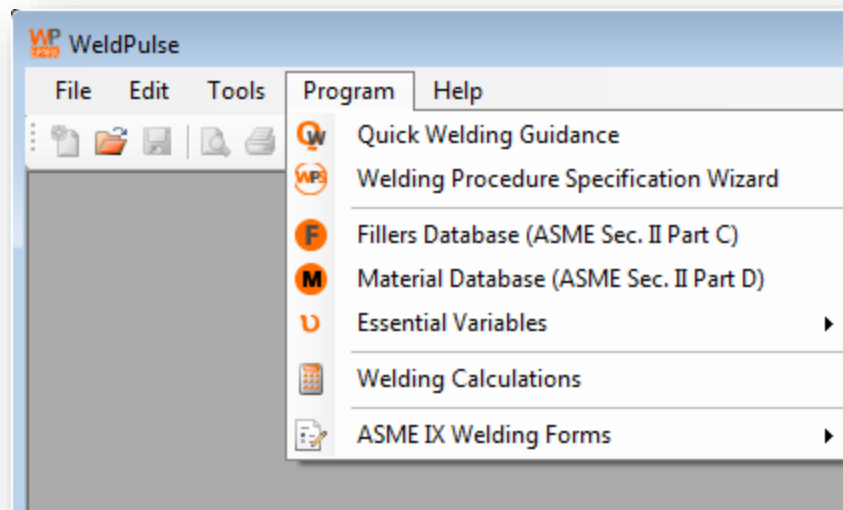
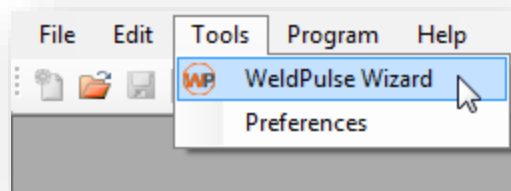


Click **OK** to move forward

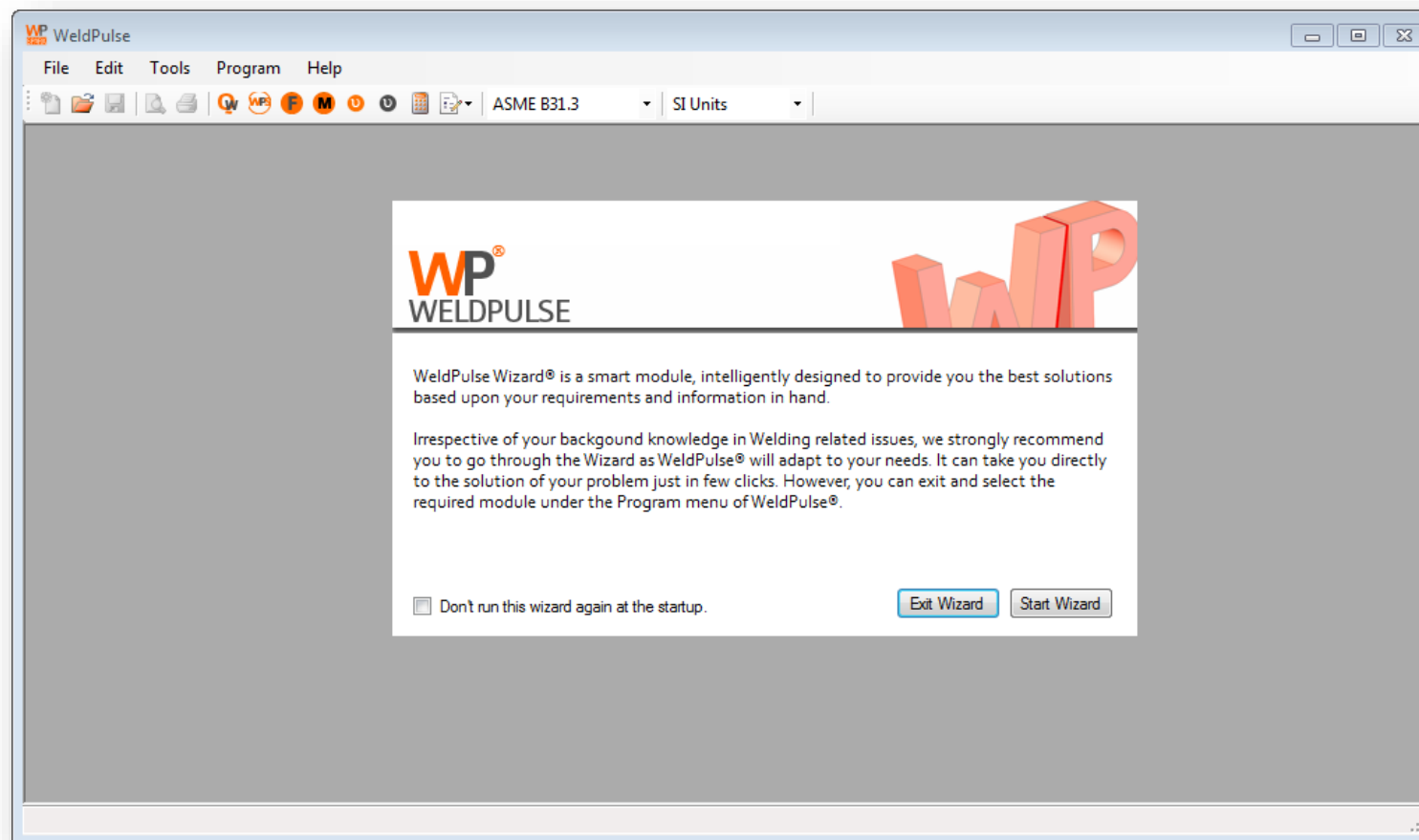


Blank screen will appear as software has assumed your profile settings.

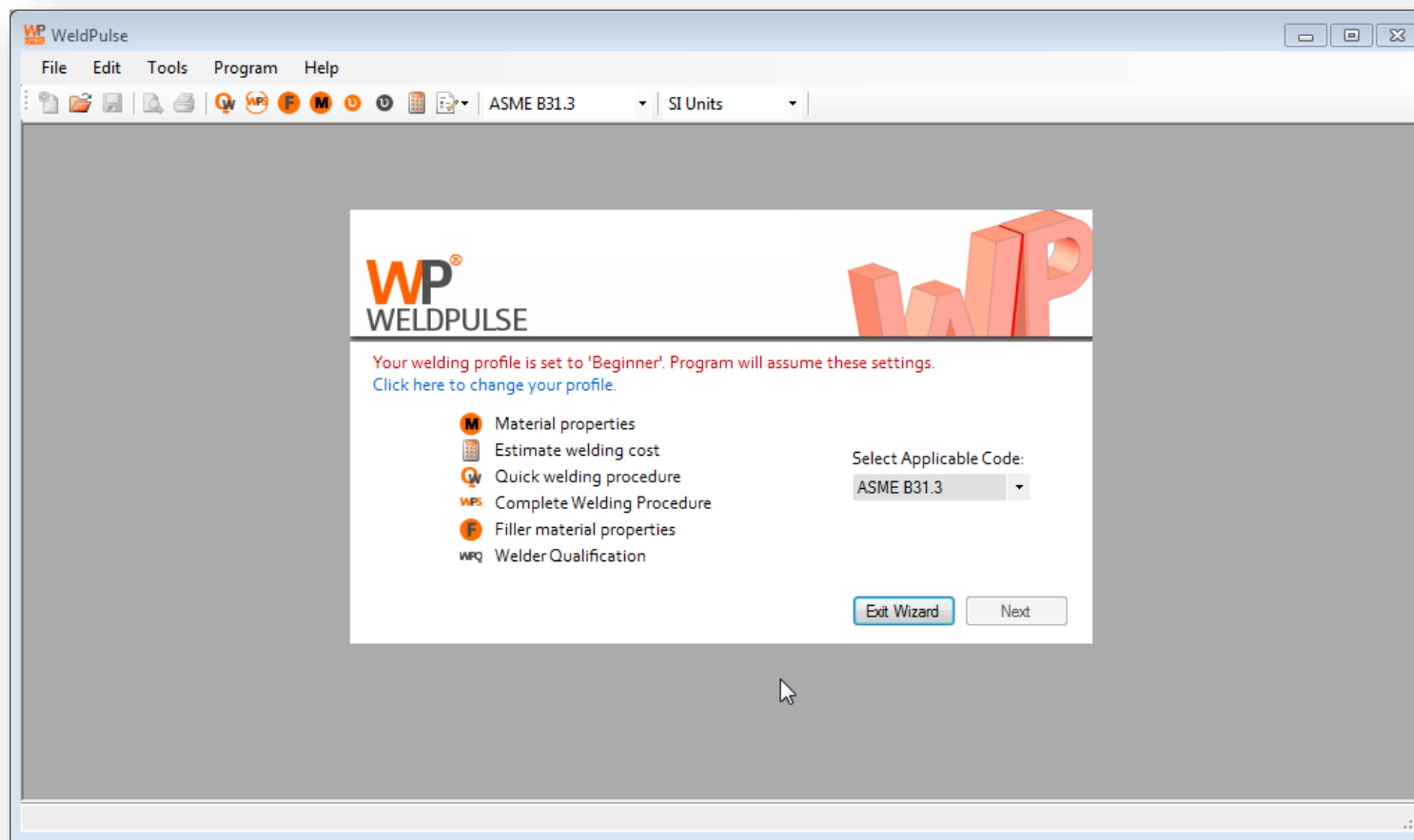
From here on, either you run the **WeldPulse Wizard[®]** from **Tools** menu or select any module from **Program**



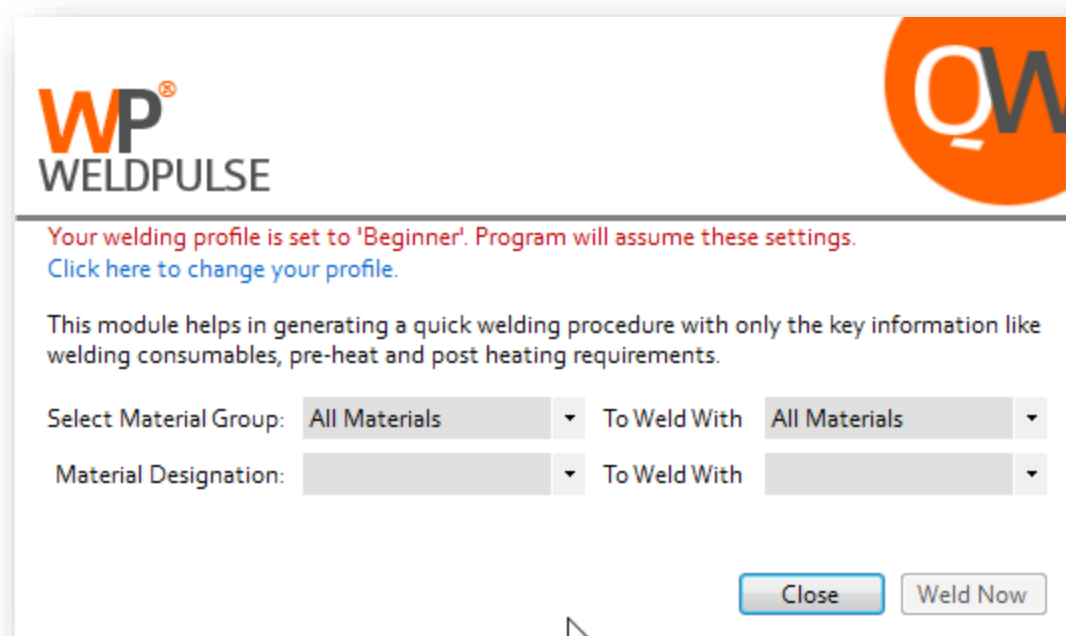
We continue with WeldPulse Wizard[®]. Click **Start Wizard**



WeldPulse® presents you with modules suiting your welding profile



For example, click Quick Welding Procedure



The screenshot shows the 'Quick Welding Procedure' (QW) module interface. At the top left is the 'WP WELDPULSE' logo, and at the top right is a large orange circle with the letters 'QW' in white. Below the logos, a red message states: 'Your welding profile is set to 'Beginner'. Program will assume these settings.' followed by a blue link: 'Click here to change your profile.' Below this, a text block explains: 'This module helps in generating a quick welding procedure with only the key information like welding consumables, pre-heat and post heating requirements.' The interface includes two rows of dropdown menus: 'Select Material Group: All Materials' and 'To Weld With: All Materials' in the first row, and 'Material Designation:' and 'To Weld With' in the second row. At the bottom right, there are two buttons: 'Close' and 'Weld Now'.

Note: Modules including WPS, PQR, Ferrite Check, CE, HI , Properties, procedure & performance qualifications do not have any impact on profile settings.





QuickWeld[®] is designed to provide you quick welding guidelines just by providing the materials information. You need to know about the construction code, materials to be welded and their joint thickness to make best use of QuickWeld

Inputs

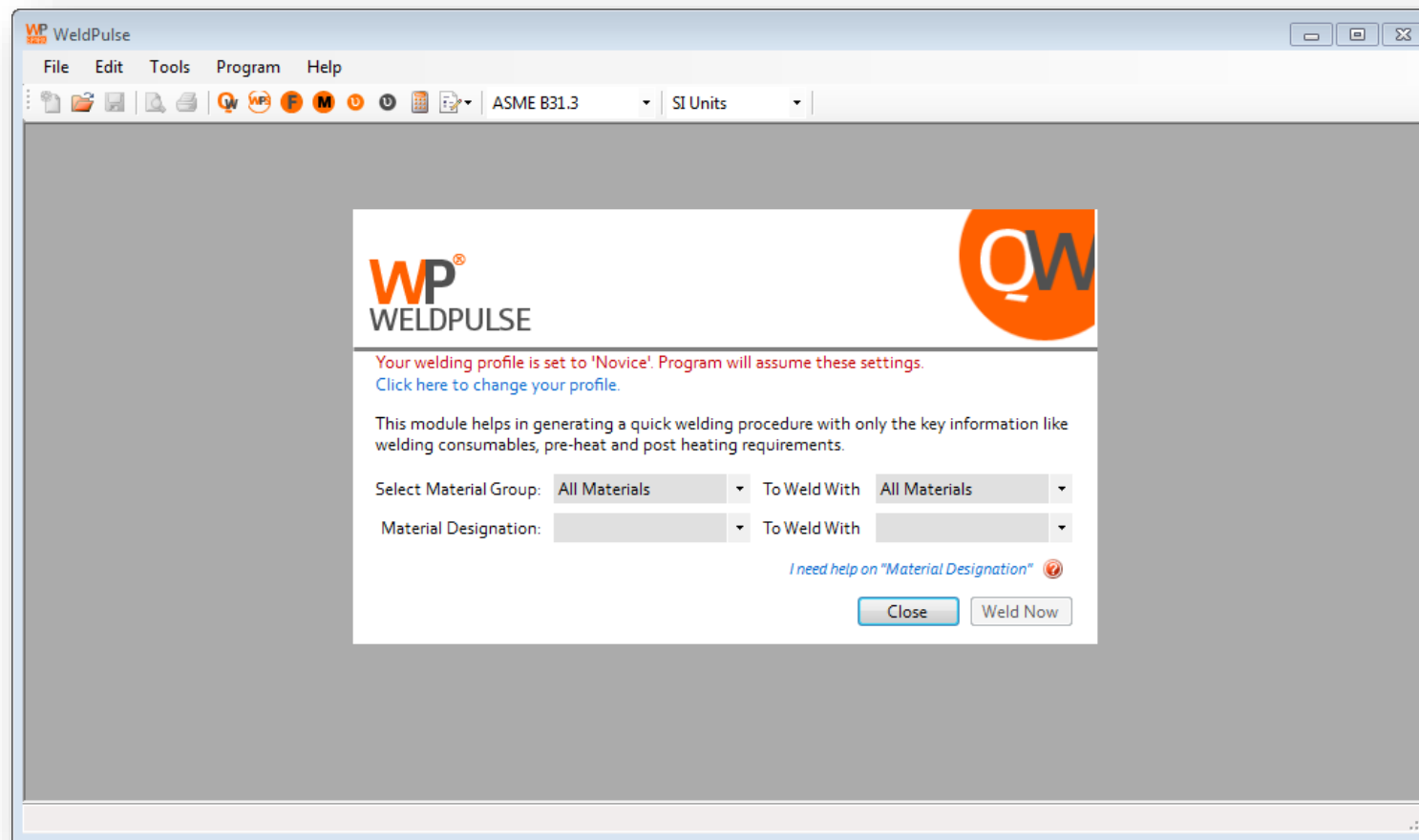
- Material information (containing 500+ materials in database)
- Construction code (ASME B31.3, B31.1 ASME Sec. I, Sec. VIII-1 & 2)

Results (depends upon profile)

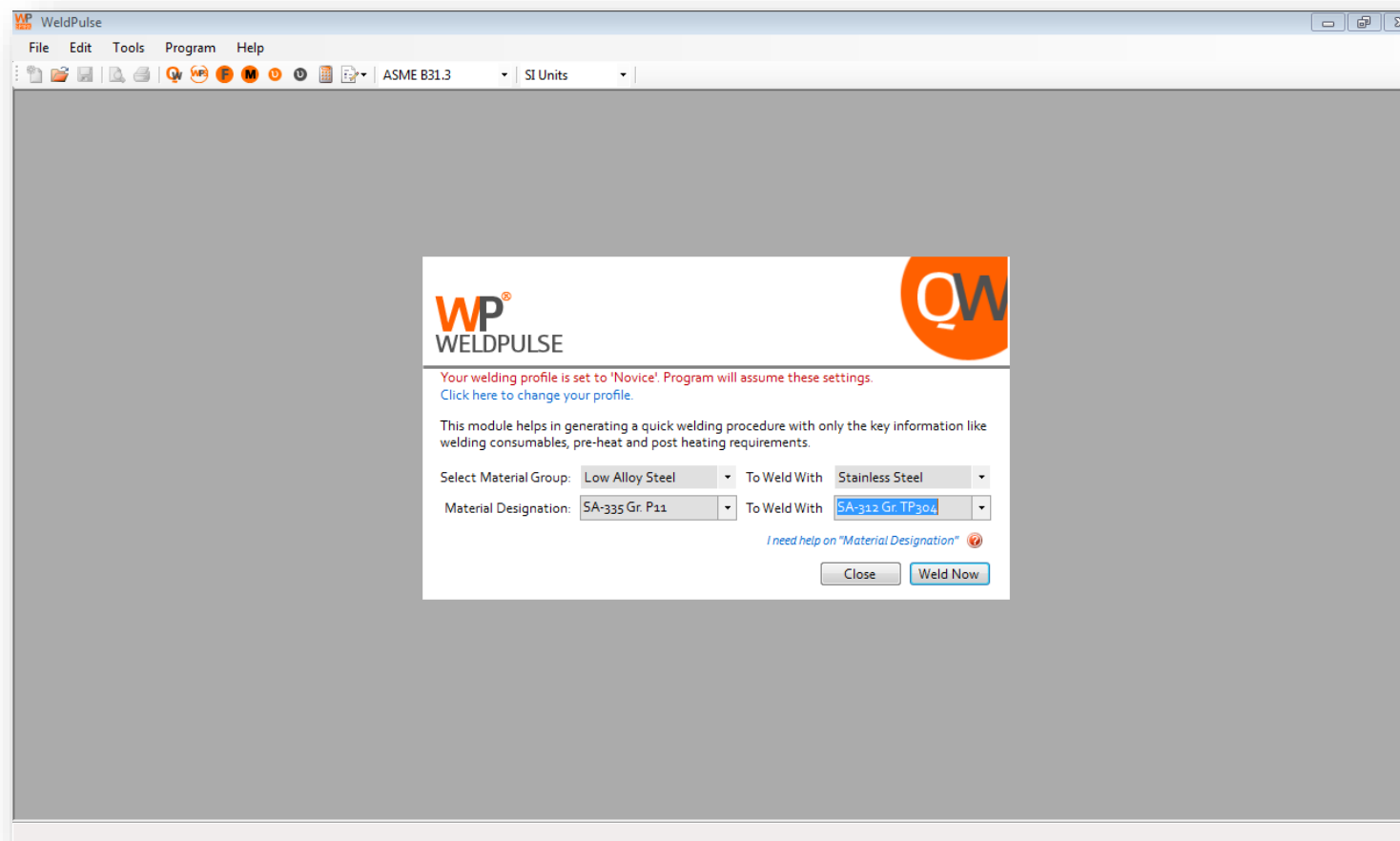
- Pre-heat
- Interpass
- Filler & electrode (GTAW & SMAW only)
- Post weld heat treatment
- General comments, if any



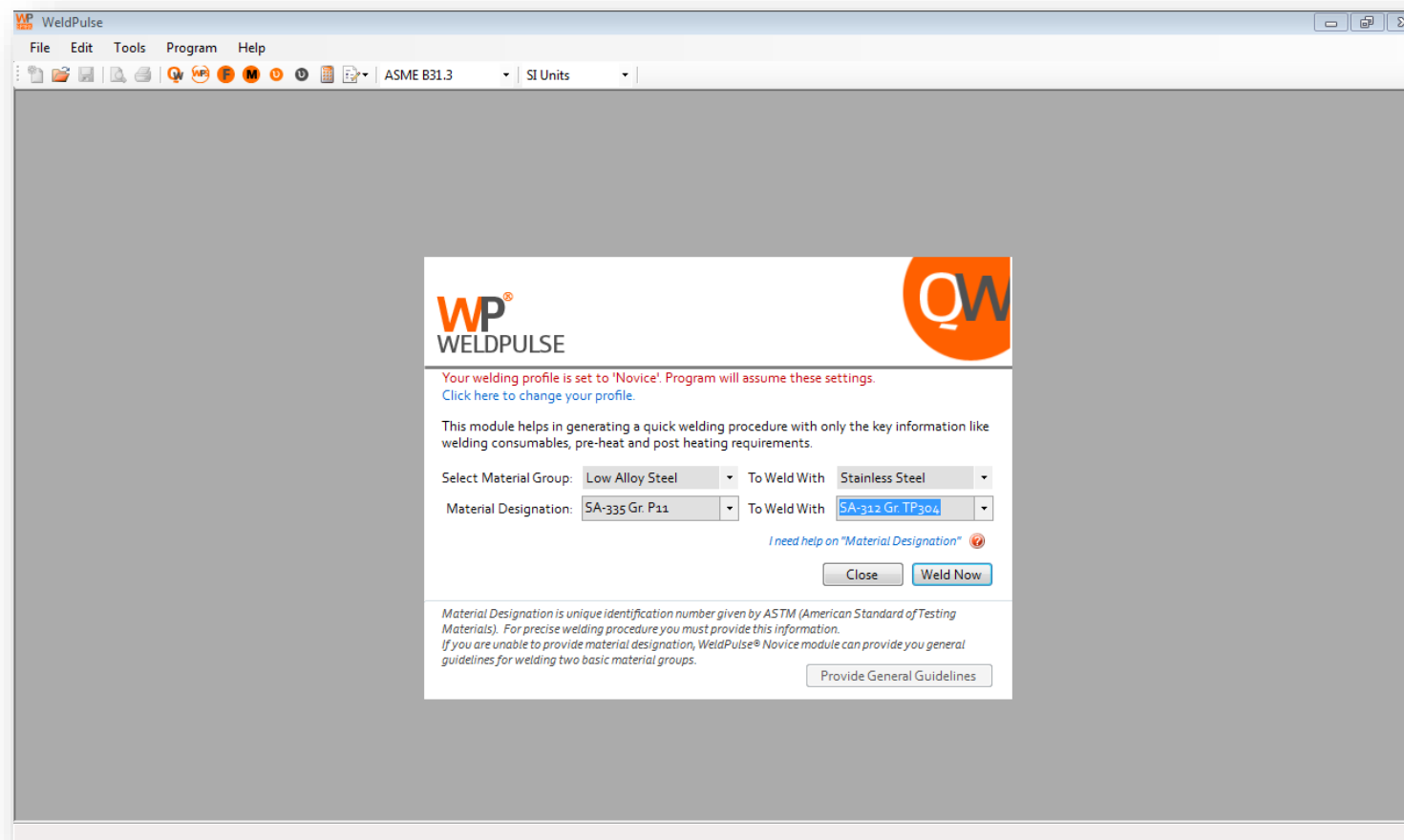
Let's start QuickWeld[®] module in Novice settings:



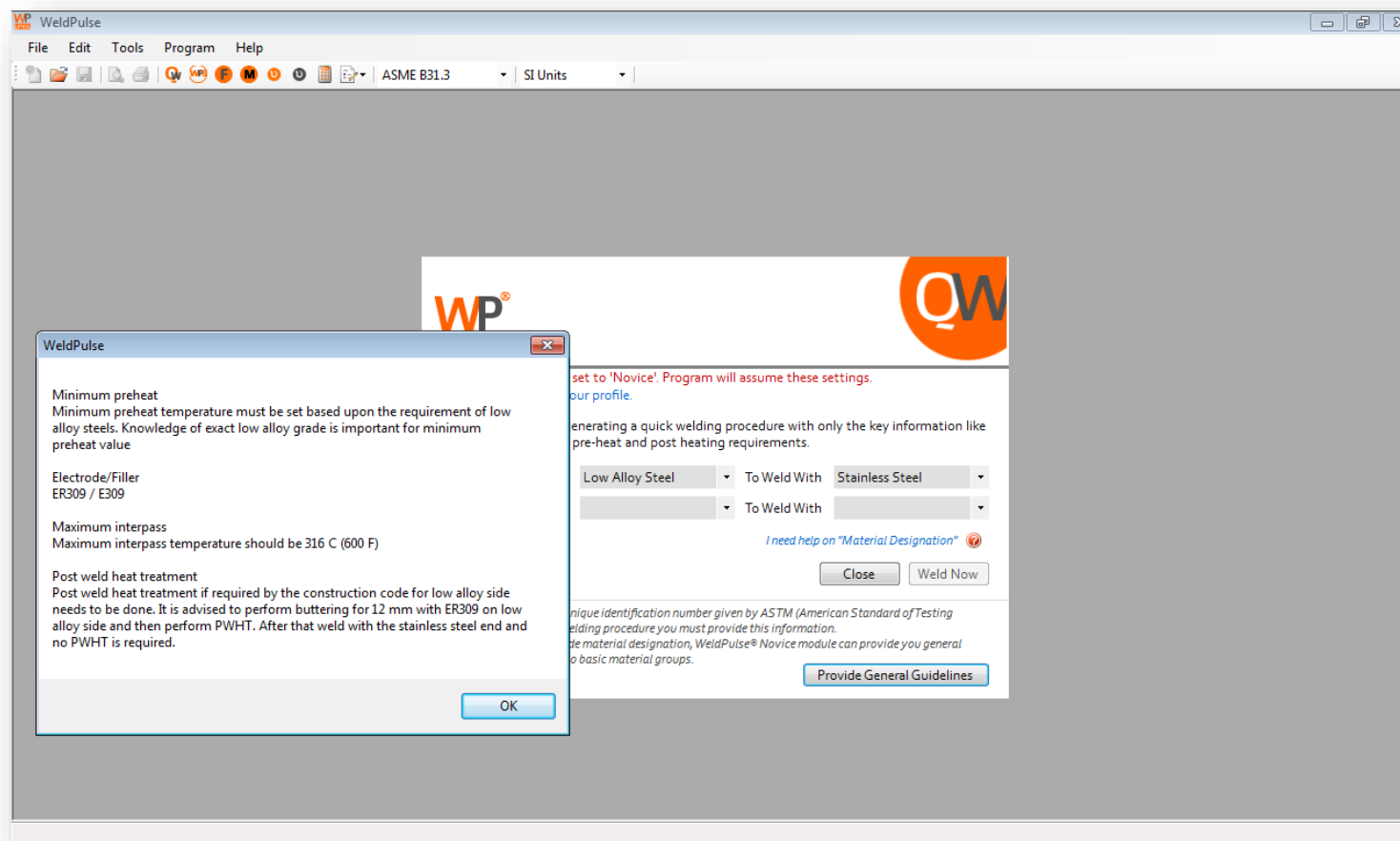
Let's have a look at QuickWeld[®] in Novice settings



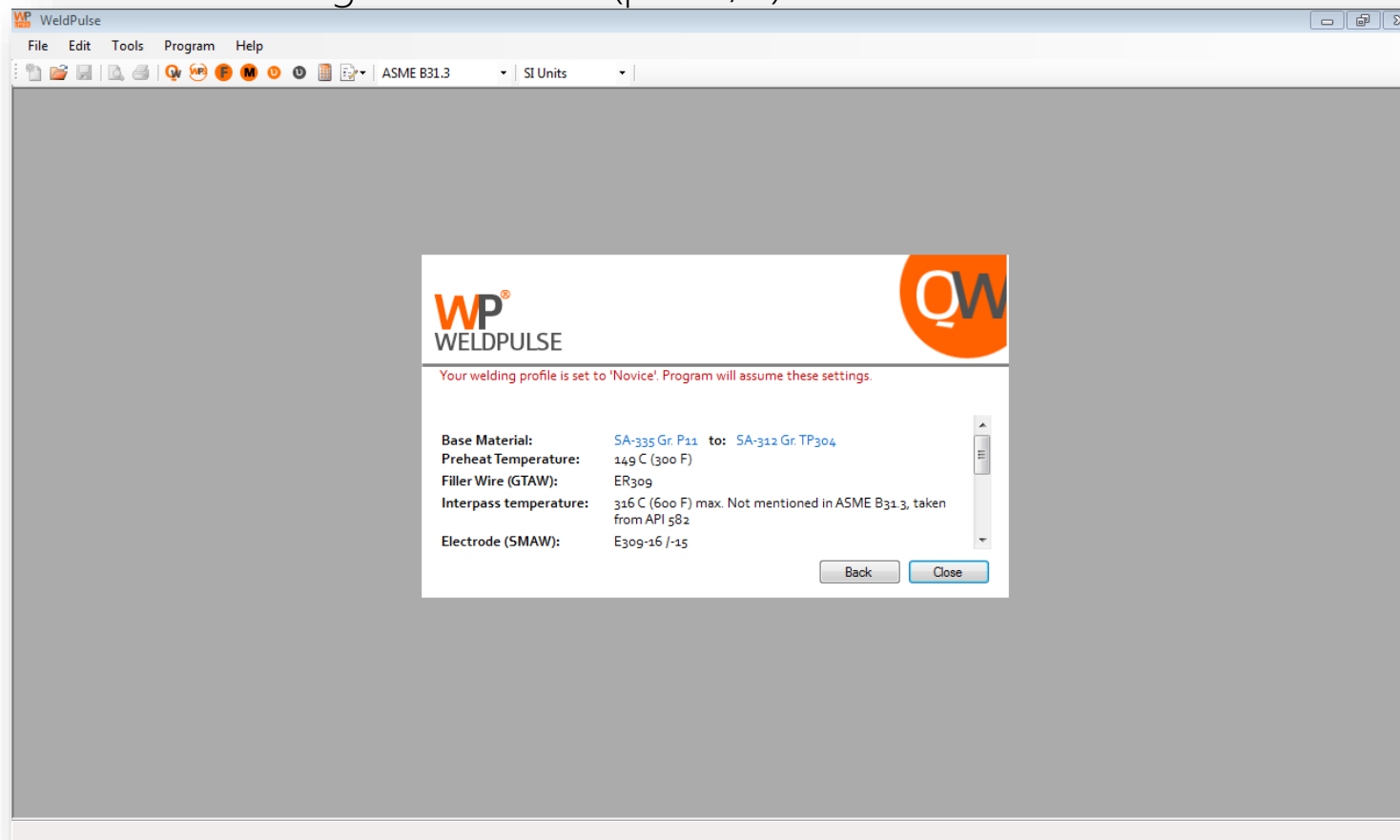
Material designation guidelines...



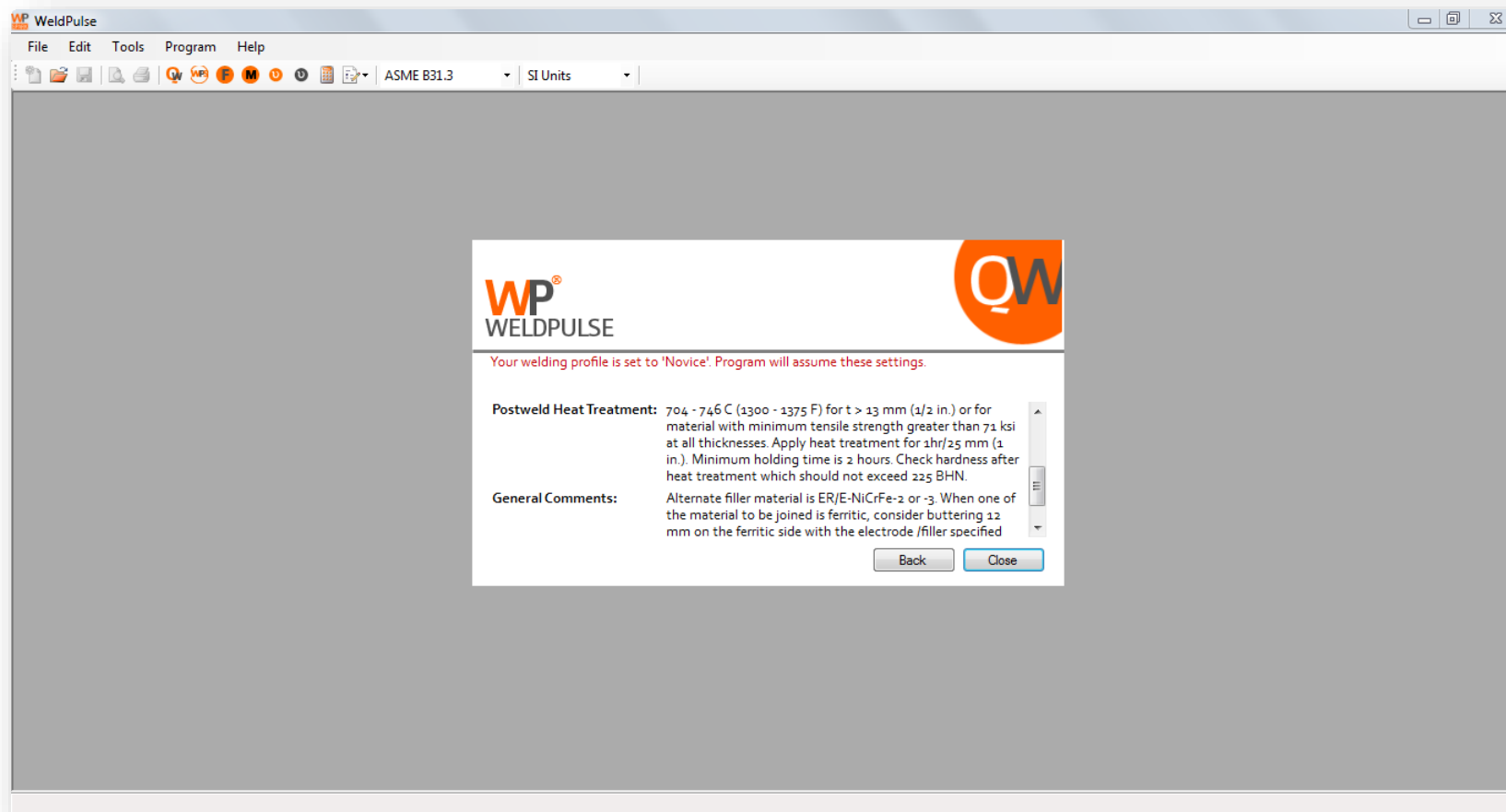
If you don't know the material specifications, click general guidelines:



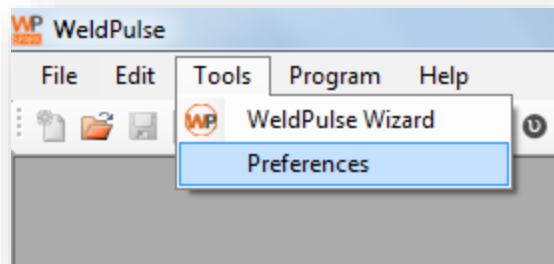
Results for Novice settings are as here (part 1/2):



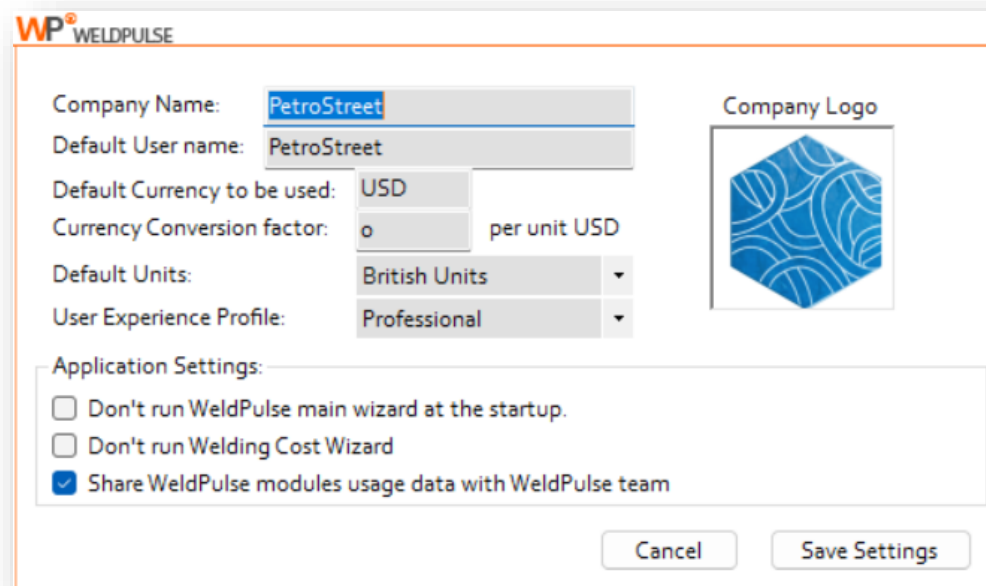
Results for Novice settings are as here (part 2)/2:



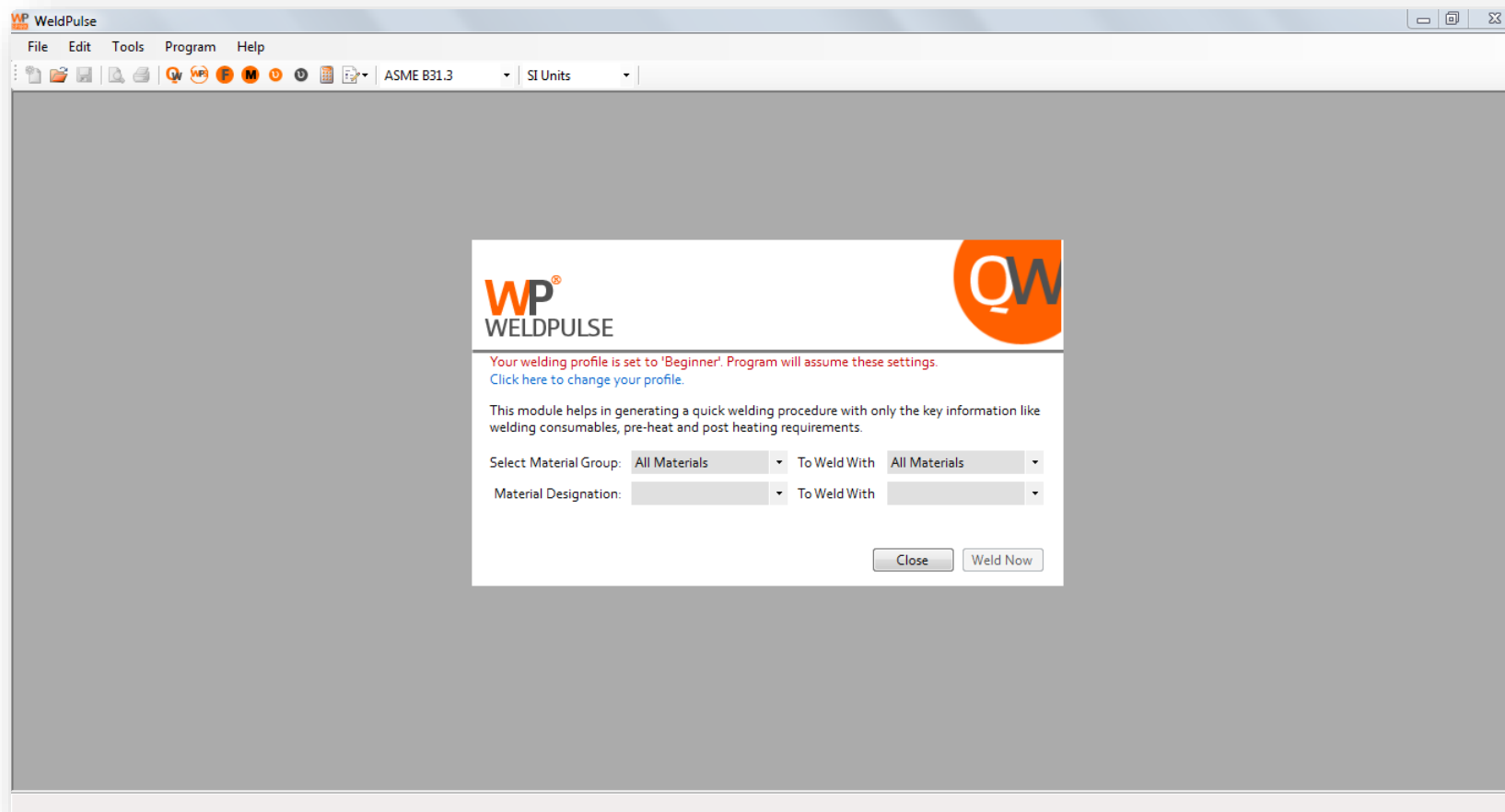
Let's change the profile to beginner and then use QuickWeld[®]:



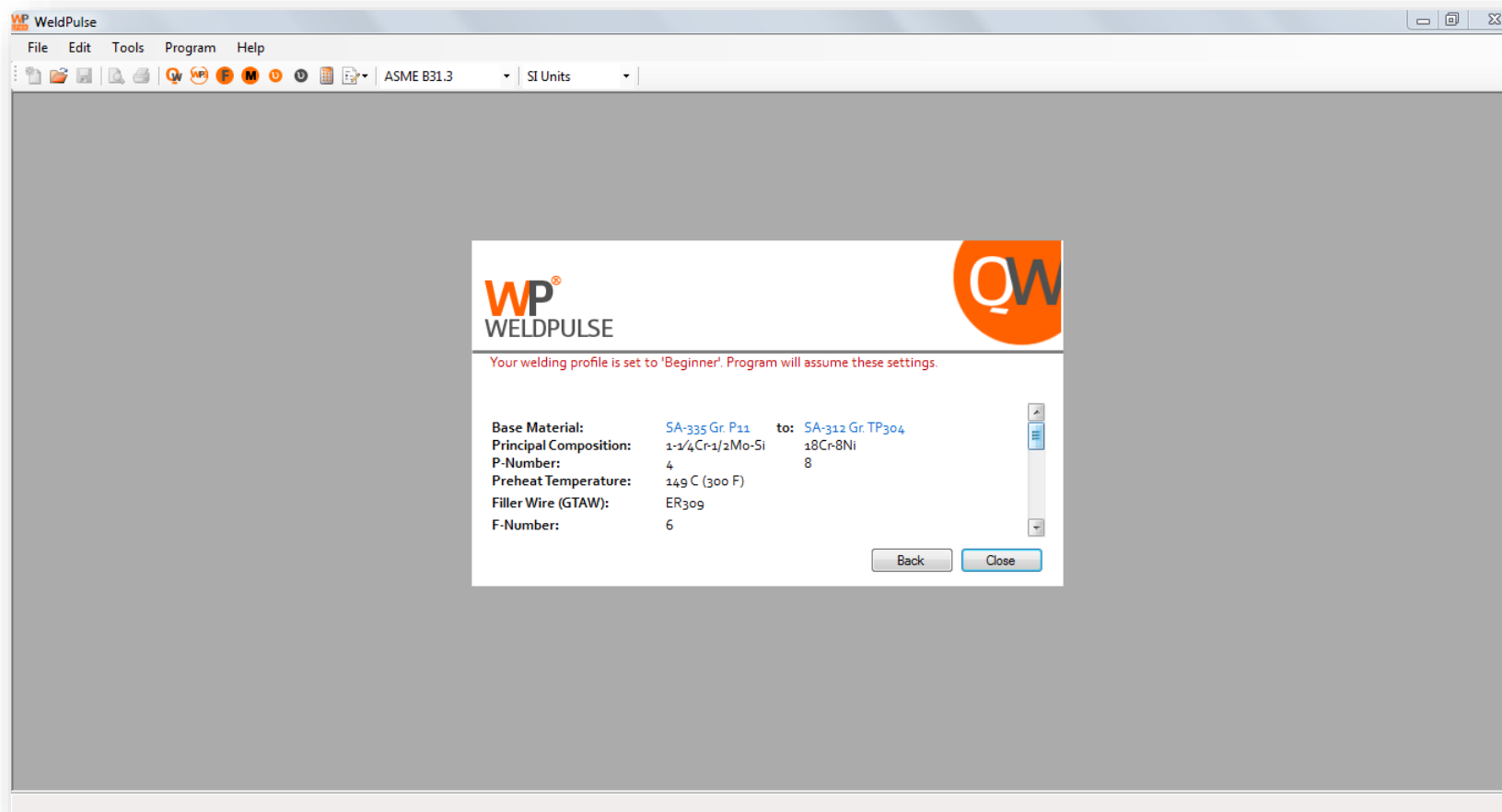
Change the profile to beginner and click **Save Settings**



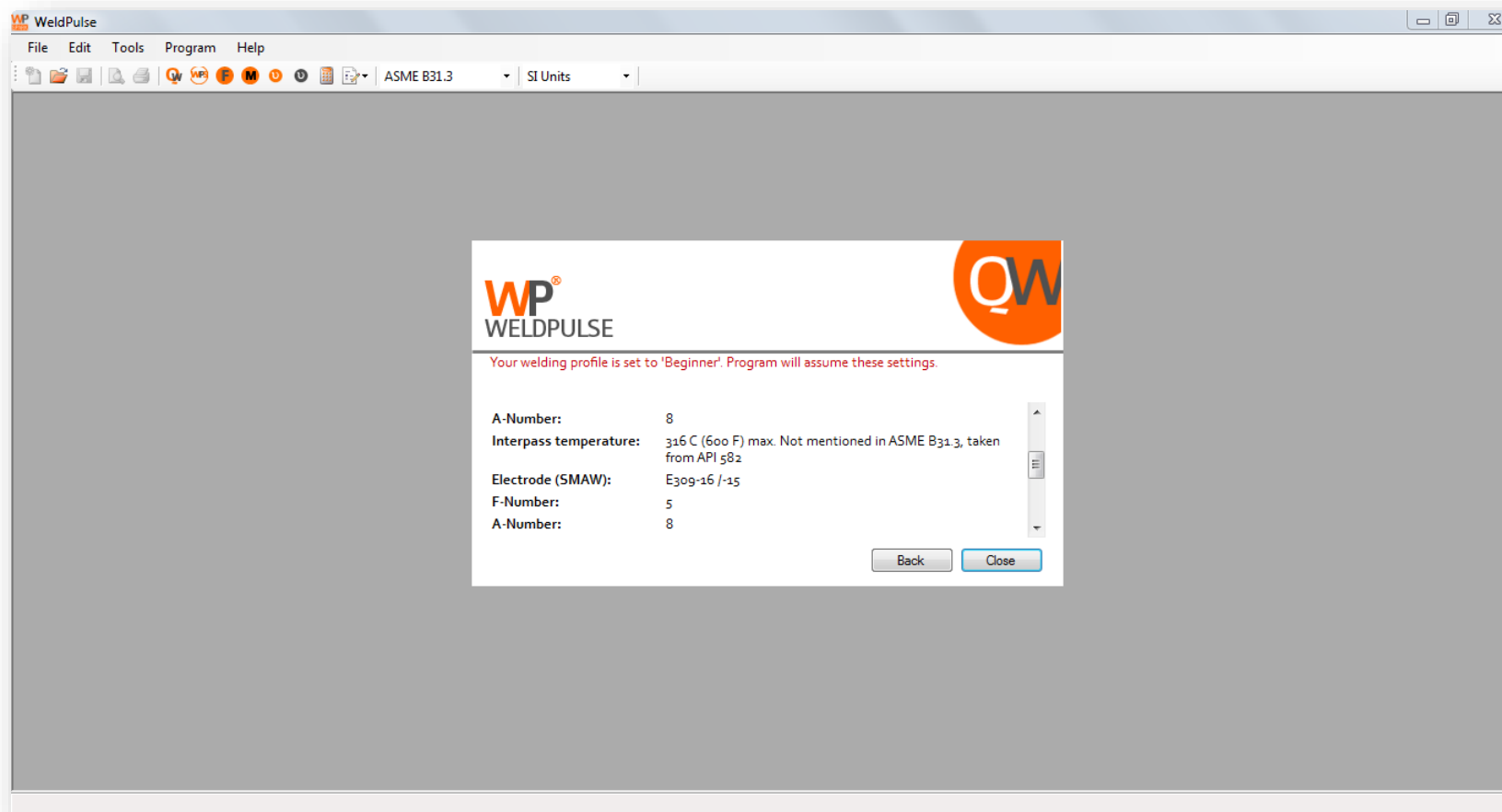
See in this profile setting, no general guidelines offered



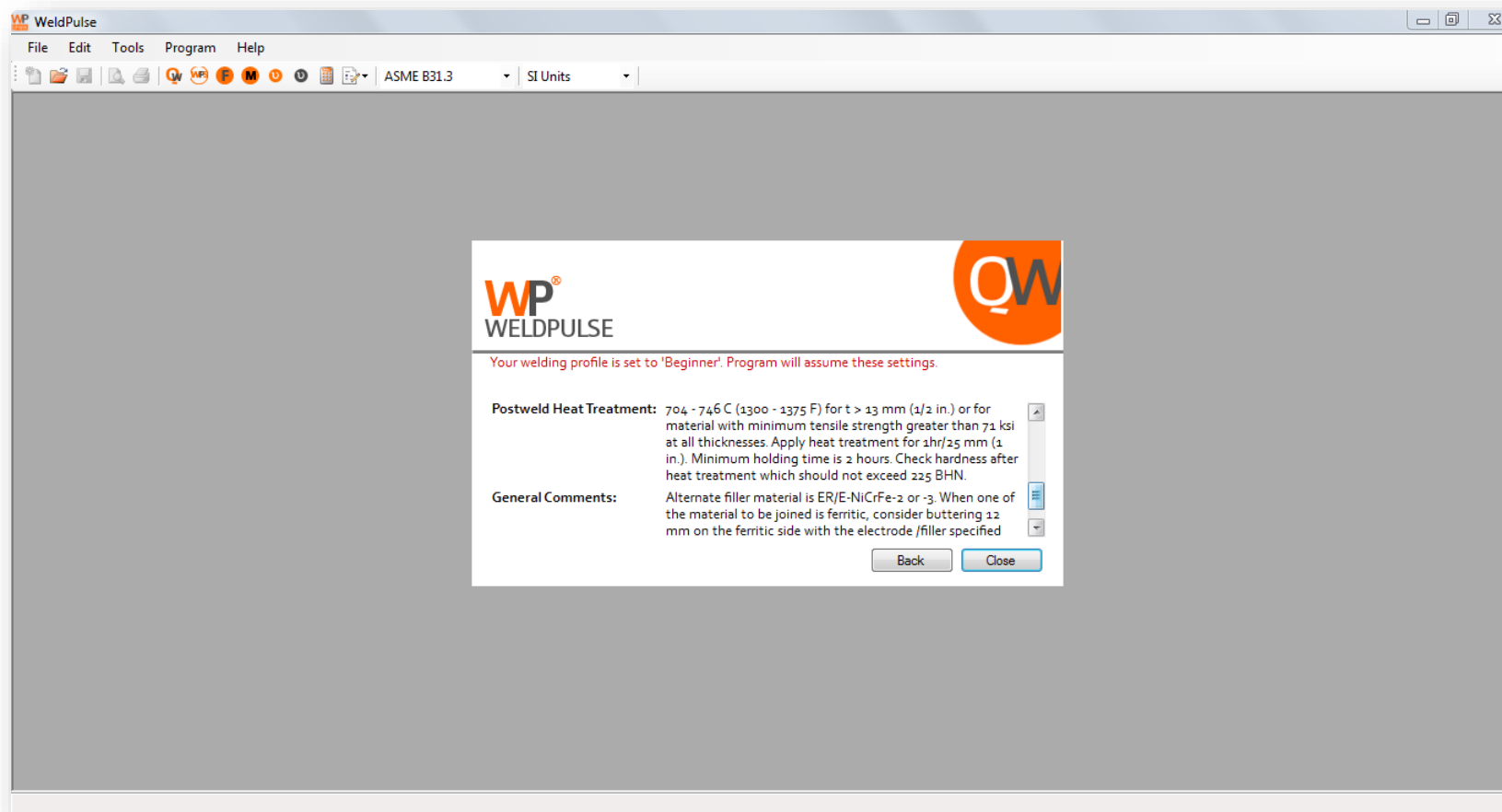
See the level of details offered to Beginner (part 1/3):



See the level of details offered to Beginner (part 2/3):




See the level of details offered to Beginner (part 3/3):



Professional results show as below:

WP[®]
WELDPULSE




Your welding profile is set to 'Professional'. Program will assume these settings.

Base Material:	SA-335 Gr. P11	to: SA-312 Gr. TP304
Alloy Designation:	K11597	S30400
Principal Composition:	1-1/4Cr-1/2Mo-Si	18Cr-8Ni
P-Number:	4	8
Group No.:	1	1
Preheat Temperature:	149 C (300 F)	

Back
 Close

WP[®]
WELDPULSE




Your welding profile is set to 'Professional'. Program will assume these settings.

Filler Wire (GTAW):	ER309
F-Number:	6
A-Number:	8
AWS:	5.9
Interpass temperature:	316 C (600 F) max. Not mentioned in ASME B31.3, taken from API 582

Back
 Close

WP[®]
WELDPULSE

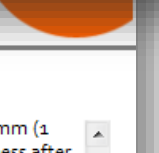


Your welding profile is set to 'Professional'. Program will assume these settings.

Electrode (SMAW):	E309-16 /-15
F-Number:	5
A-Number:	8
AWS:	5.4
Postweld Heat Treatment:	704 - 746 C (1300 - 1375 F) for t > 13 mm (1/2 in.) or for material with minimum tensile strength greater than 71 ksi at all thicknesses. Apply heat treatment for 1hr/25 mm (1

Back
 Close

WP[®]
WELDPULSE



Your welding profile is set to 'Professional'. Program will assume these settings.

General Comments:	at all thicknesses. Apply heat treatment for 1hr/25 mm (1 in.). Minimum holding time is 2 hours. Check hardness after heat treatment which should not exceed 225 BHN. Alternate filler material is ER/E-NiCrFe-2 or -3. When one of the material to be joined is ferritic, consider buttering 12 mm on the ferritic side with the electrode /filler specified and perform heat treatment. In this case, no pre-heat or PWHT is required.
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Back
 Close

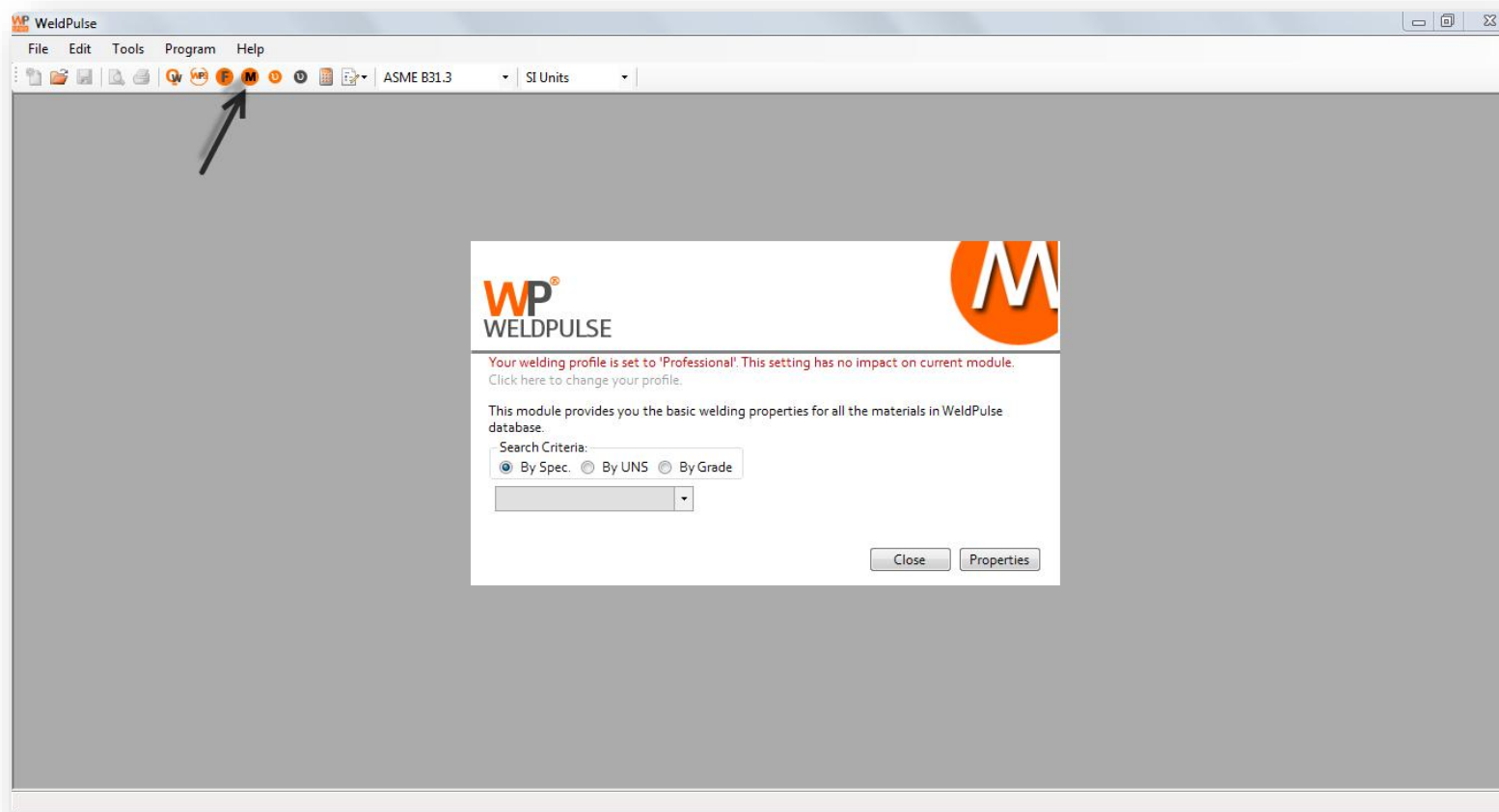


Material Properties



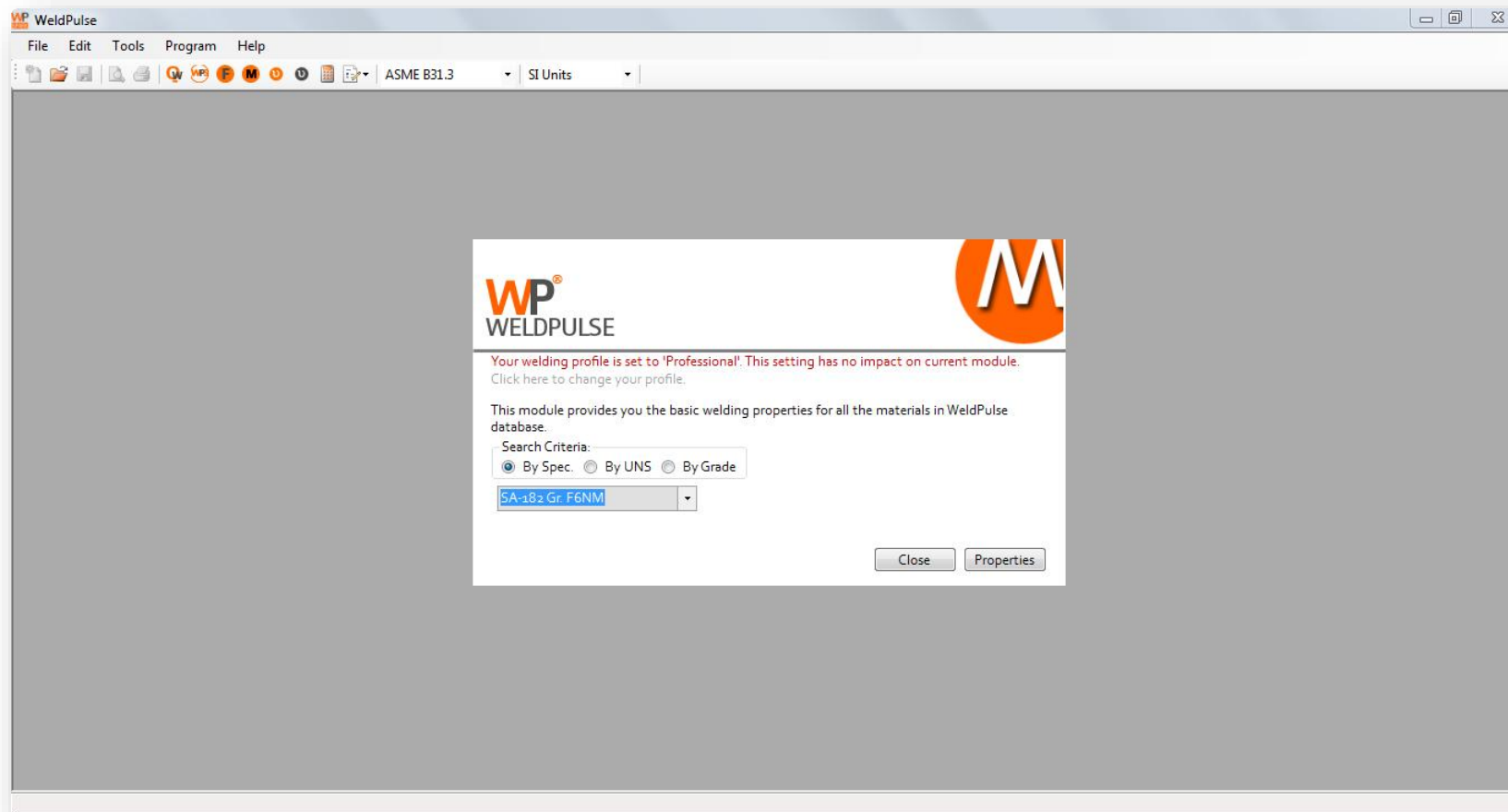
Material Properties

WeldPulse[®] provides chemical and mechanical properties of materials in database. There are 500+ ASME materials available in WeldPulse.



Material Properties

Enter either the specification, grade or UNS number to get the properties



Material Properties

Properties appear like shown below:

WP WELDPULSE **MATERIAL WELDING PROPERTIES** IMAC

Full Spec. Name:	SA-182 Gr. F6NM
Alloy Designation/UNS No:	S41500
Discription:	Standard Specification for Forged or Rolled Alloy and Stainless Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service
Product Form:	Forgings
P. Number:	6
G. Number:	4
Min. Tensile Strength (MPa):	115
Min. Yield Strength (MPa):	90
Nominal Composition:	13Cr-4Ni
Chemical Composition:	
Carbon (C)	0.05
Manganese (Mn)	0.50-1.00
Silicon (Si)	0.60
Sulfur (S)	0.030
Phosphorus (P)	0.030
Chromium (Cr)	11.5-14.0
Nickel (Ni)	3.5-5.5
Molybdenum (Mo)	0.50-1.00

includes P-number, Group number also

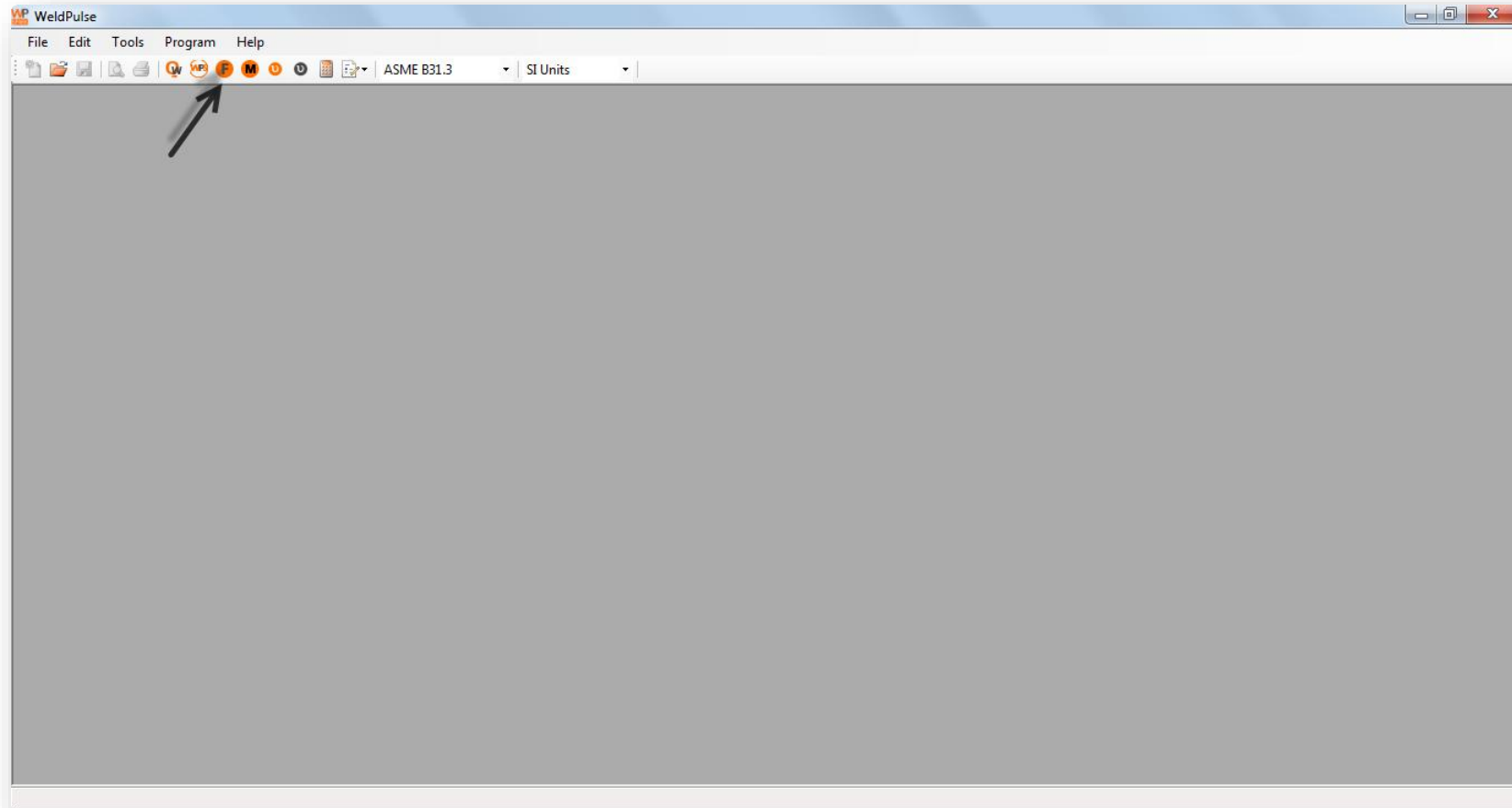


Filler Properties



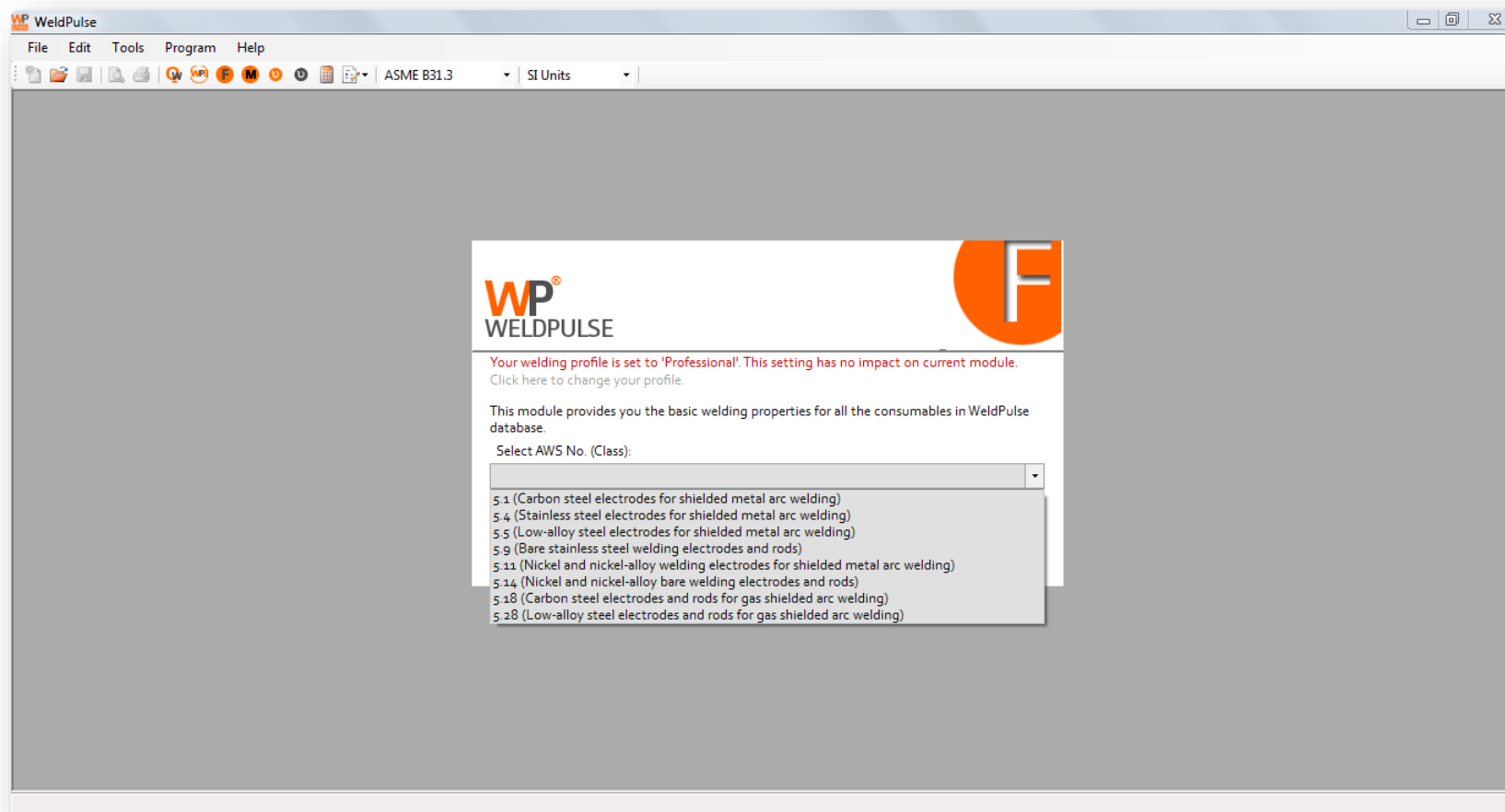
Filler Properties

Filler materials database is included for SMAW & GTAW processes



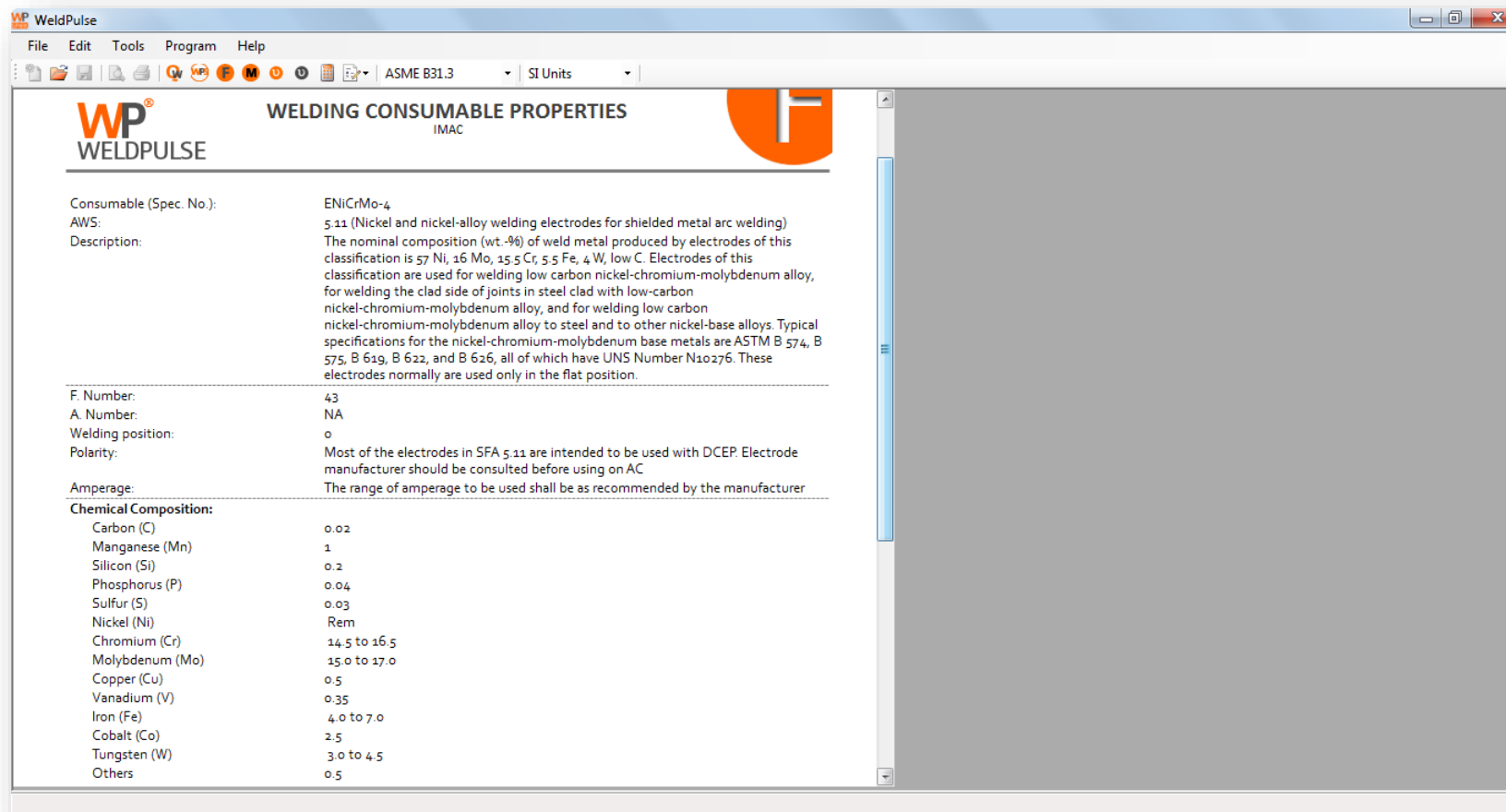
Filler Properties

Choose the appropriate AWS classification



Filler Properties

Filler properties are shown as below:





PQR form is shown here:

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PROCEDURE QUALIFICATION RECORD
IMAC

PQR

Company Name

Procedure Qualification Record No. Date

WPS No.

Welding Process(es)

Types (Manual, Automatic, Semi-Automatic)

Joints (QW-402)

Groove Design of test Coupon

(For combination qualifications, the deposited weld metal thickness shall be recorded for each filler metal and process used.)

Image is not in default database. you can click here to browse for your custom image

Base Metals (QW-403)

Material Spec. to

Type/Grade, or UNS Number to

P-No. G. No. to P-No. G. No.

Thickness of Test Coupon mm

Diameter of Test Coupon in

Maximum Pass Thickness mm

Other

Post Weld Heat Treatment (QW-407)

Temperature

Time

Other

Gas (QW-408)

Percent Composition

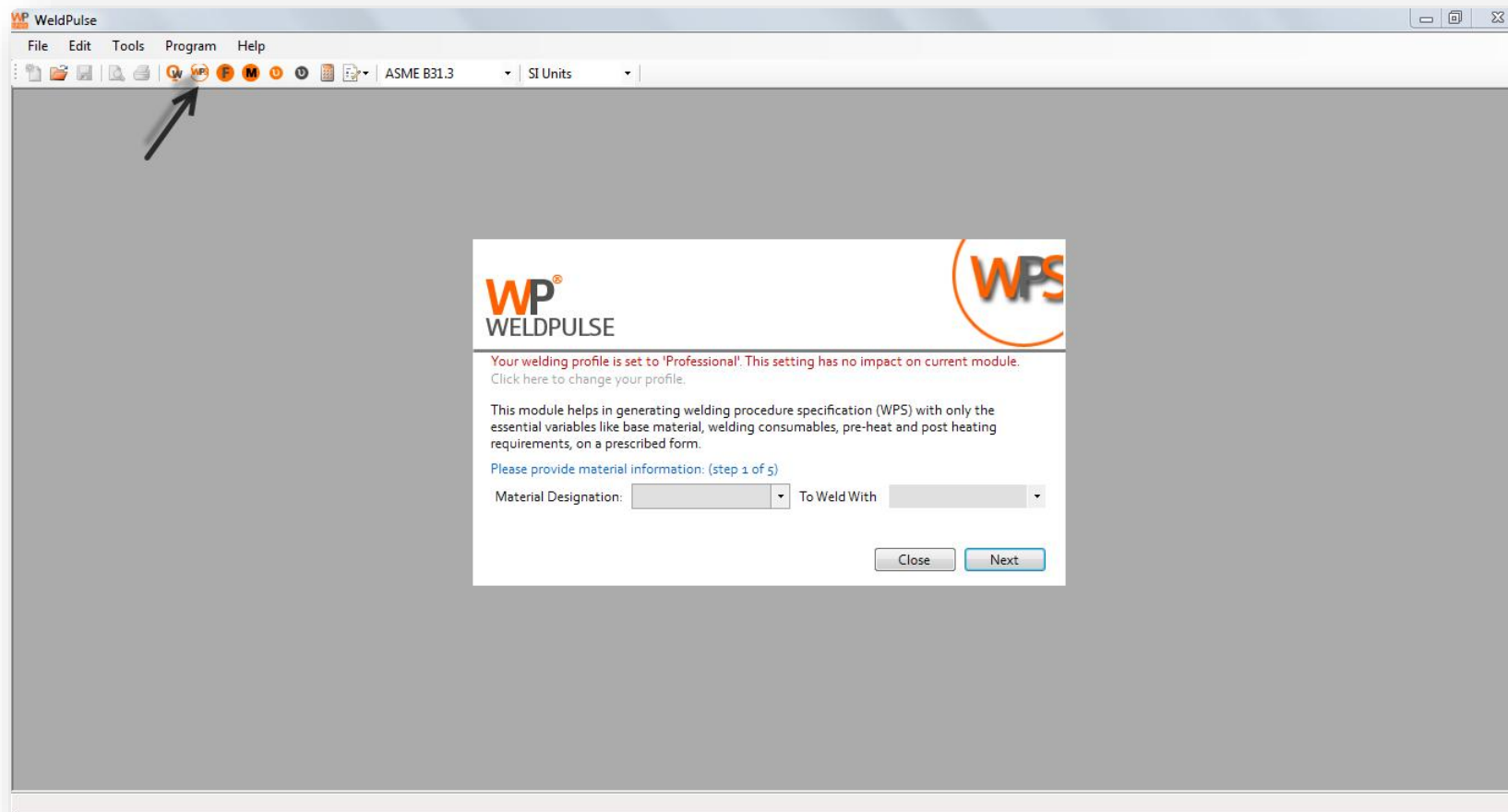
	Gas(es)	(Mixture)	Flow Rate
Shielding	<input type="text"/>	<input type="text"/>	<input type="text"/>
Filler	<input type="text"/>	<input type="text"/>	<input type="text"/>

Filler Metals (QW-404)

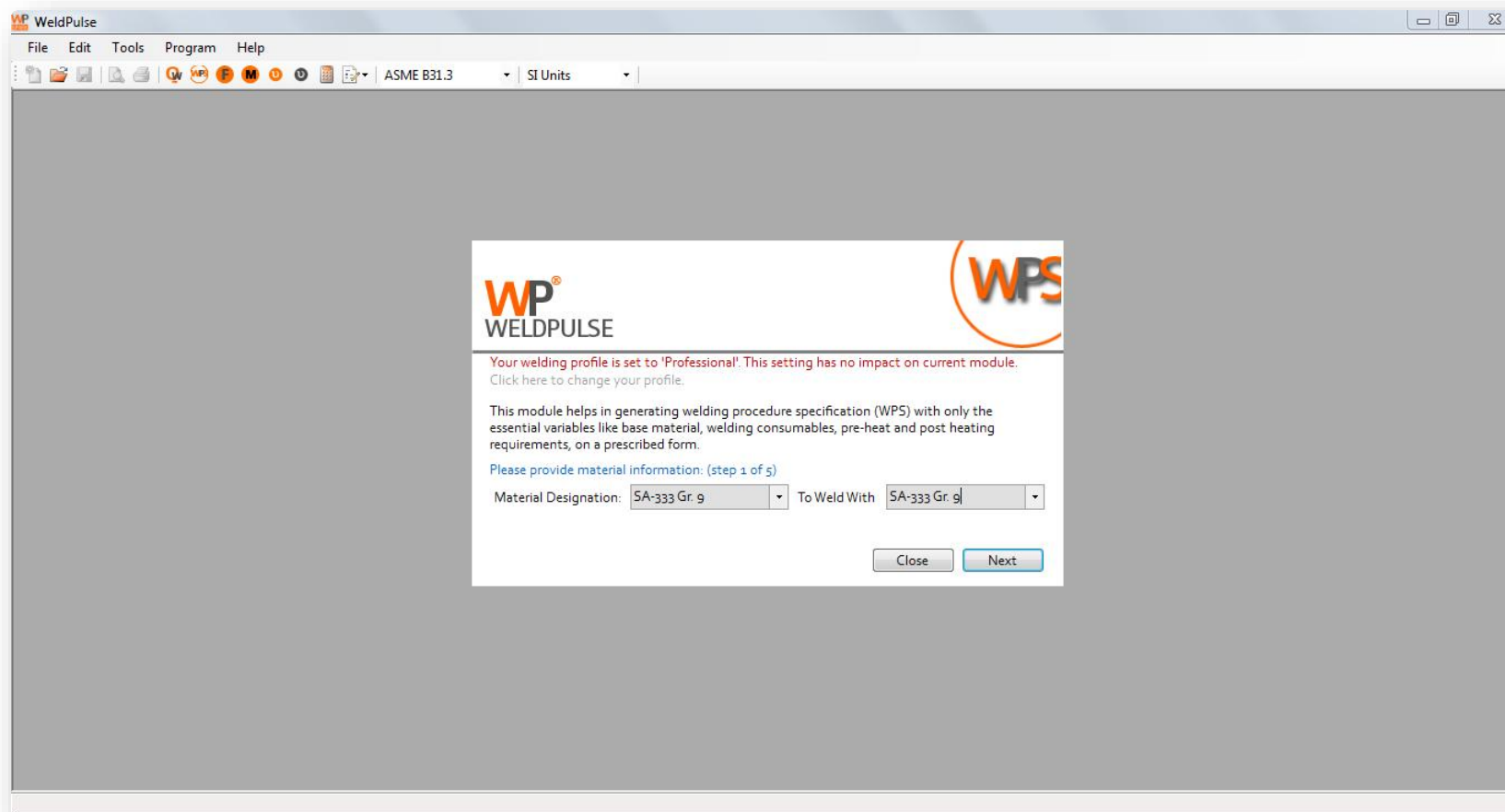




A complete preliminary WPS or from PQR can be made through WeldPulse[®]



It's a 5 step process. In 1st step, enter materials information



In step 2, WeldPulse[®] will provide materials P-number and Group Number

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Your welding profile is set to 'Professional'. This setting has no impact on current module.

Please provide material information (QW-403 Base Metals): (step 2 of 5)

Material Spec. No. SA-333 Gr. 9 to SA-333 Gr. 9

P Number: 9A

Group Number: 1

Thickness Range: ☐ ≤ 13 mm ☐ > 13 mm

Joint Type: Groove

Back Close Next



In step 3, WeldPulse® asks for joint design, root spacing, backing etc.

The screenshot shows the WPS WELD PULSE software interface. The main window has a menu bar with 'File', 'Edit', 'Tools', 'Program', and 'Help'. Below the menu bar is a toolbar with various icons. The main area is a large gray rectangle. A dialog box is open in the center, titled 'WPS WELD PULSE'. The dialog box contains the following text and controls:

- Header: **WPS WELD PULSE**
- Status: Your welding profile is set to 'Professional!'. This setting has no impact on current module.
- Instruction: Please provide following general information: (step 3 of 5)
- Fields:
 - Joint Design: Single V (dropdown menu)
 - Root Spacing: [text input field]
 - Backing Material: ☐ Yes ☐ No
 - Weld Process(es): (Root / Filling Capping) [dropdown menu] / [dropdown menu]
 - Backing / Purging Gas: [dropdown menu]
- Buttons: Back, Close, Next

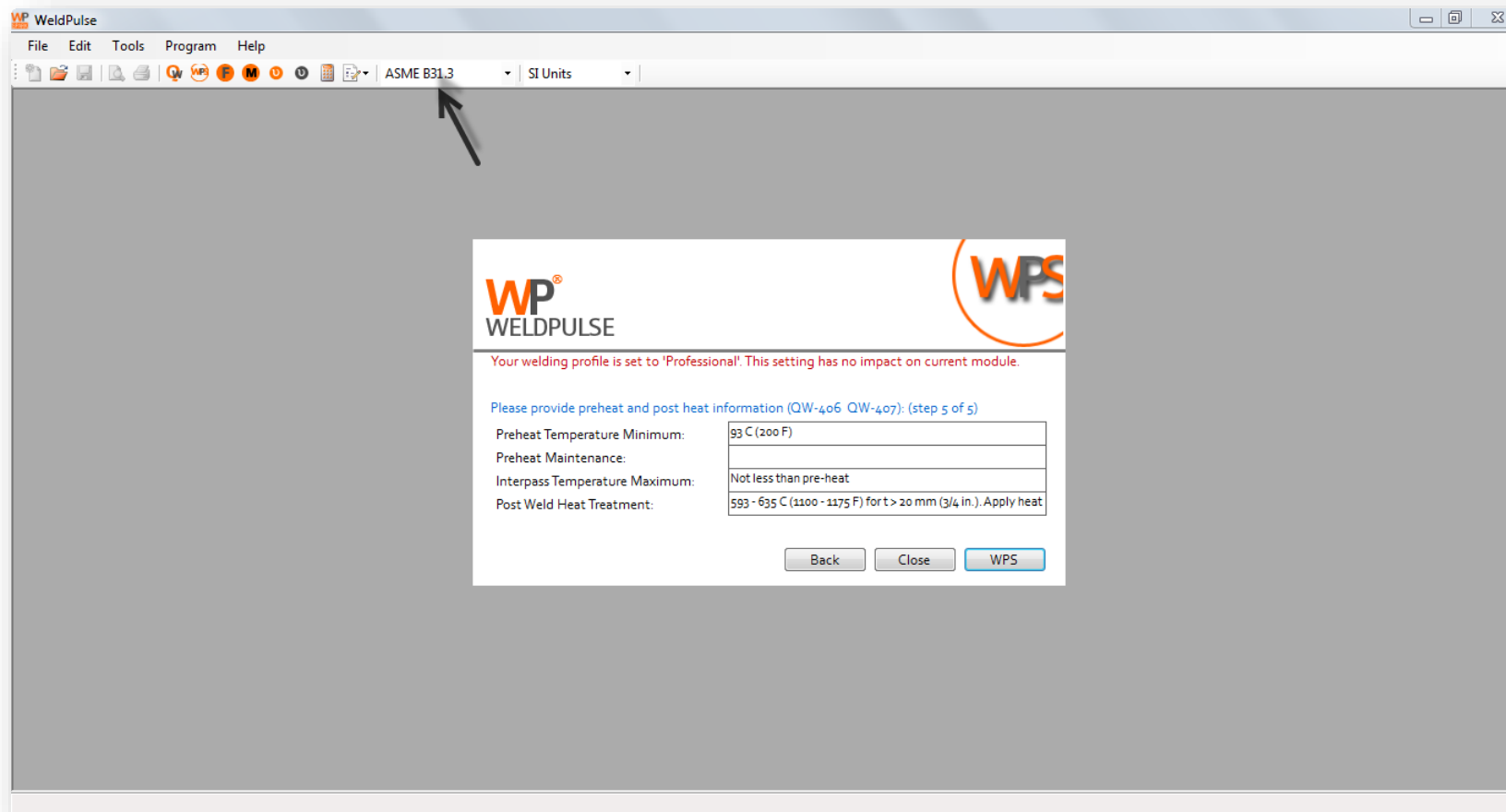


In step 4, it requires filler information; for GTAW & SMAW consumables are suggested

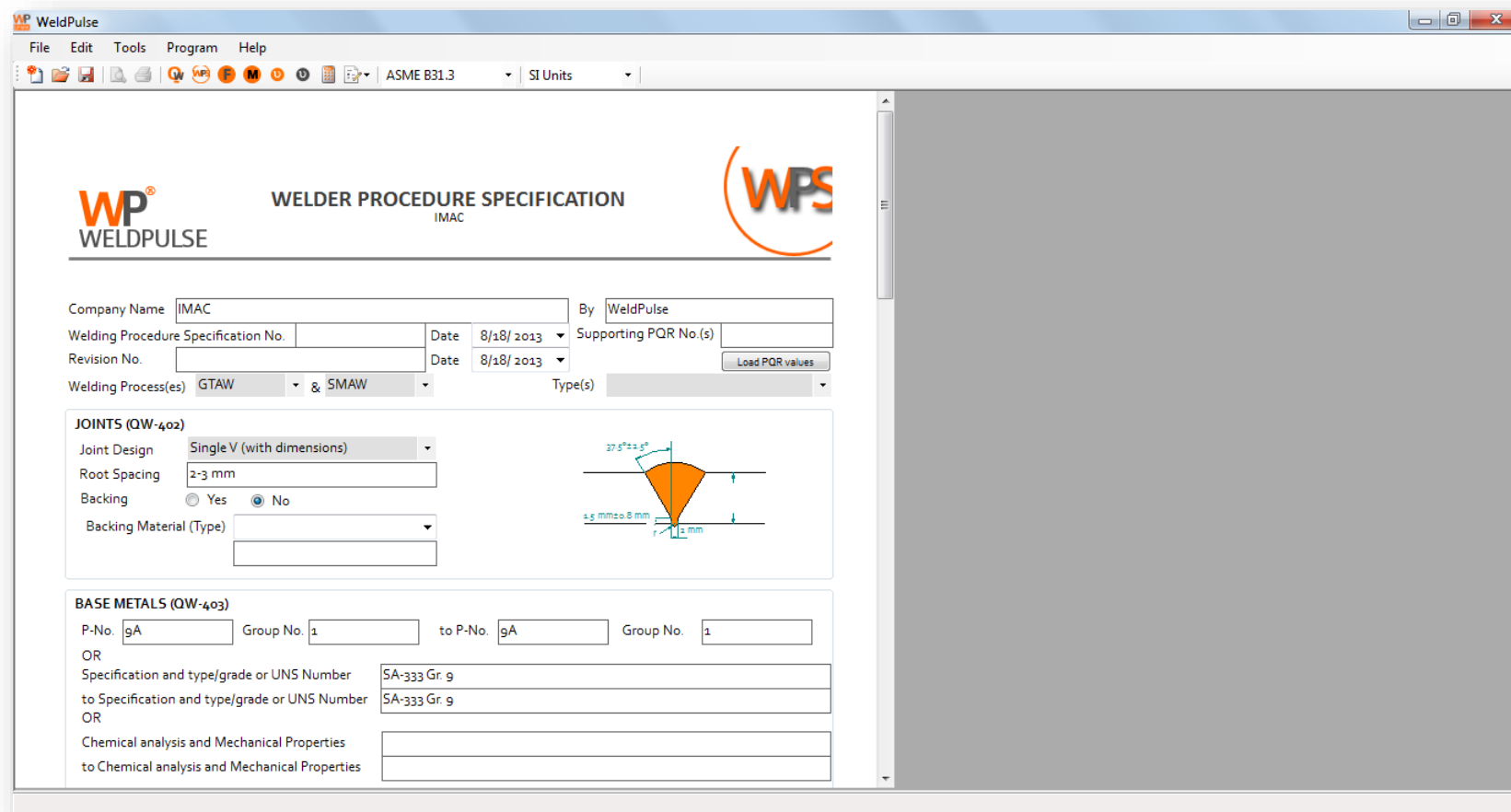
The screenshot shows the WP WELDPULSE software window. The title bar reads 'WP WELDPULSE'. The menu bar includes 'File', 'Edit', 'Tools', 'Program', and 'Help'. The toolbar contains various icons, including a file icon, a folder icon, a printer icon, a magnifying glass icon, a 'W' icon, a 'P' icon, a 'M' icon, a 'U' icon, a 'V' icon, a 'D' icon, and a 'C' icon. The status bar shows 'ASME B31.3' and 'SI Units'. The main window area is gray. A white dialog box is centered on the screen. The dialog box has the WP WELDPULSE logo in the top left corner. Below the logo, it says 'Your welding profile is set to 'Professional'. This setting has no impact on current module.' Below this, it says 'Please provide welding filler information (QW-404 Filler Metals): (step 4 of 5)'. The dialog box contains five input fields: 'Consumables:', 'Specification No. (SFA):', 'F Number:', 'A Number:', and 'Weld Metal Thickness Range:'. Each input field is a rectangular box. There are three buttons at the bottom of the dialog box: 'Back', 'Close', and 'Next'.



In last step, it displays heat treatment suggestion as per construction code selected



Finally, complete WPS form is displayed



The screenshot shows the 'WELDER PROCEDURE SPECIFICATION' form in the WP WELDPULSE software. The form is titled 'WPS' and 'IMAC'. It includes fields for Company Name, Welding Procedure Specification No., Date, Revision No., Welding Process(es), and Type(s). The 'JOINTS (QW-402)' section shows a 'Single V (with dimensions)' joint design with a root spacing of 2-3 mm and backing material type. A diagram of the joint is shown with dimensions: 27.5°±2.5°, 1.5 mm±0.8 mm, and 1.2 mm. The 'BASE METALS (QW-403)' section includes fields for P-No., Group No., and Specification and type/grade or UNS Number.

WP WELDPULSE

WELDER PROCEDURE SPECIFICATION
IMAC

Company Name: IMAC By: WP WELDPULSE

Welding Procedure Specification No.: Date: 8/18/ 2013 Supporting PQR No.(s):

Revision No.: Date: 8/18/ 2013 Load PQR values

Welding Process(es): GTAW & SMAW Type(s):

JOINTS (QW-402)

Joint Design: Single V (with dimensions)

Root Spacing: 2-3 mm

Backing: ☐ Yes ☒ No

Backing Material (Type):

BASE METALS (QW-403)

P-No.: 9A Group No.: 1 to P-No.: 9A Group No.: 1

OR

Specification and type/grade or UNS Number: SA-333 Gr. 9

to Specification and type/grade or UNS Number: SA-333 Gr. 9

OR

Chemical analysis and Mechanical Properties:

to Chemical analysis and Mechanical Properties:



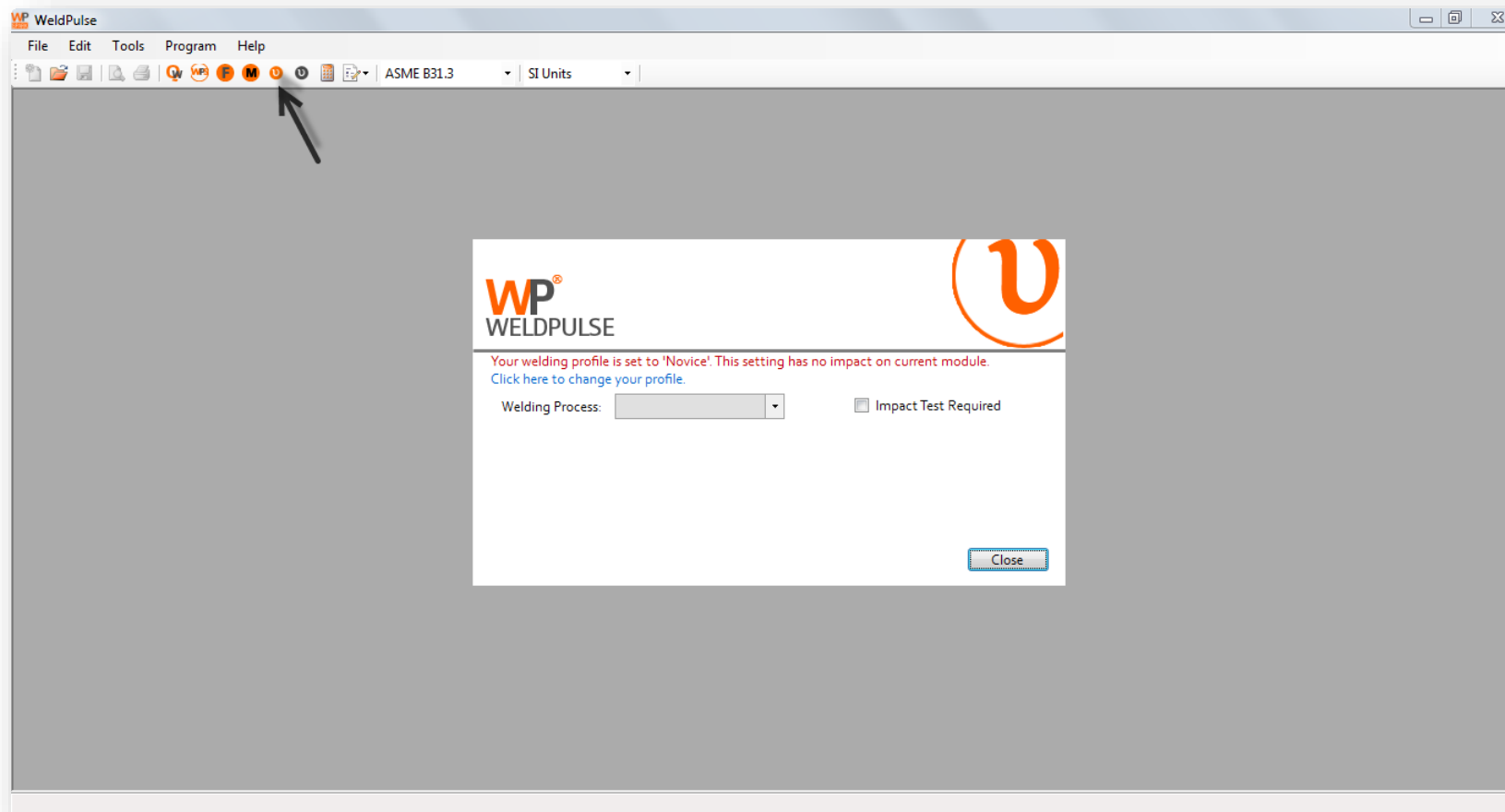


Procedure Variables



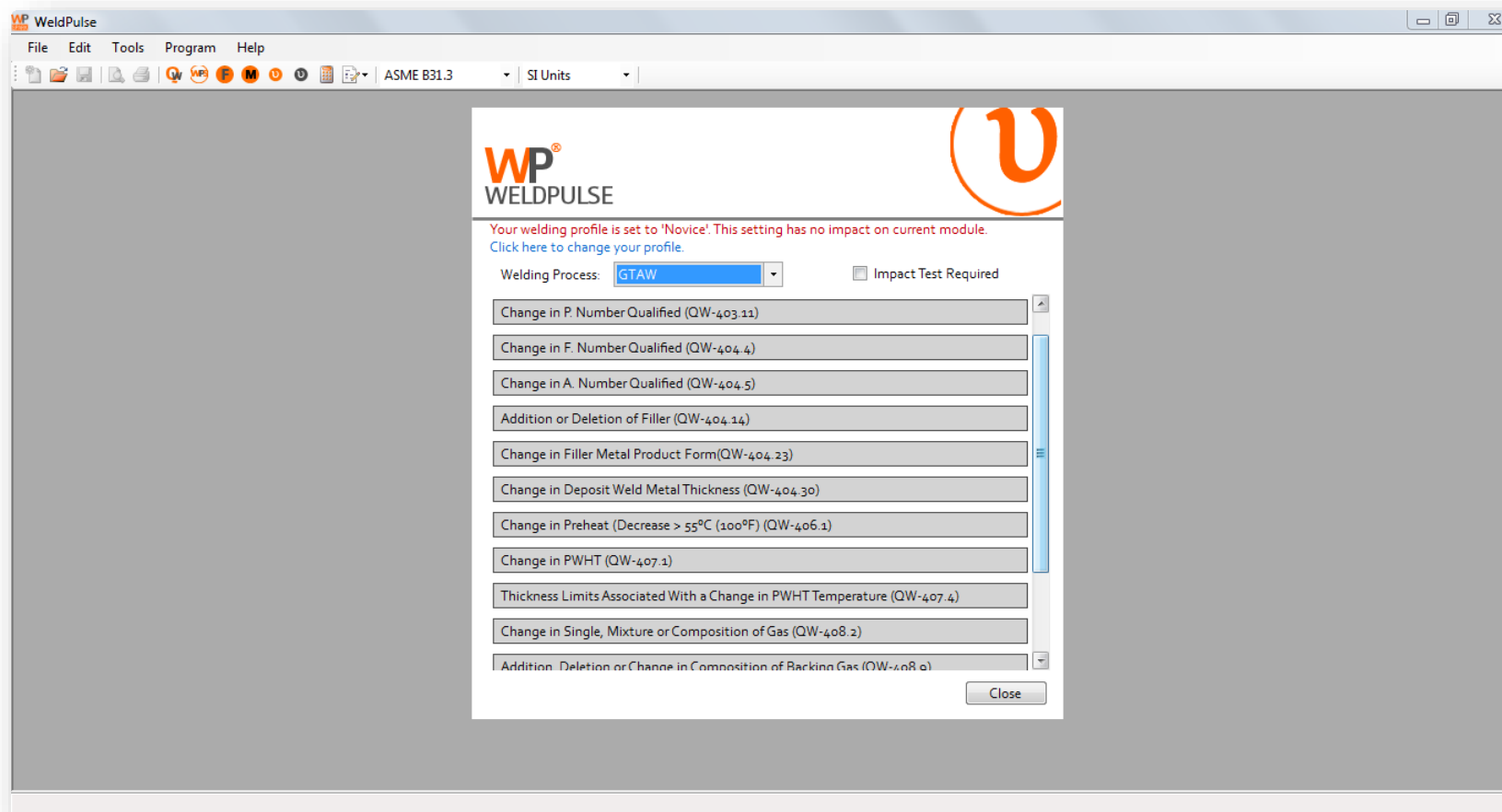
Procedure Variables

Check the procedure applicability



Procedure Variables

Select the welding process



Procedure Variables

Check any variable to see if re-qualification is required

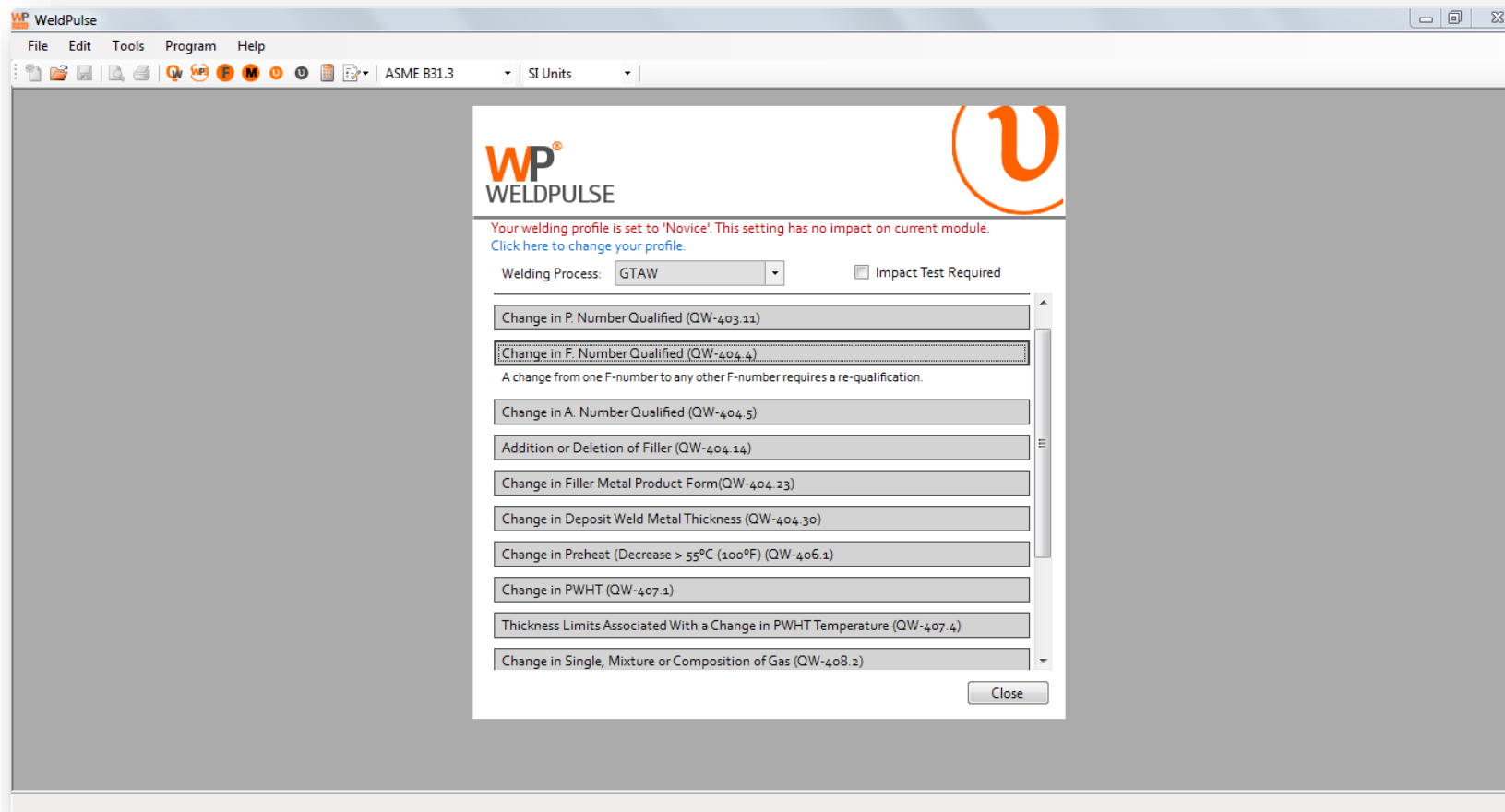
The screenshot shows the WP WELDPULSE software interface. The main window has a menu bar (File, Edit, Tools, Program, Help) and a toolbar. The central area displays a dialog box titled 'Change in Base Metal Thickness (QW-403.8)'. The dialog box contains the following information:

- Welding Process: GTAW (dropdown menu)
- Impact Test Required: ☐
- Case: Groove-Weld Tension and Transverse-Bend Tests (dropdown menu)
- Qualified for / Thickness of weld coupon, specimen, base metal: 40
- Thickness of weld deposit qualified: 40
- Thickness of new weld: 40
- * All inputs and outputs are in mm
- Minimum thickness qualified (base metal): 5
- Maximum thickness qualified (base metal): 200
- Maximum t qualified (deposited weld metal): 200
- The procedure qualifies for the new weld thickness.
- Important Note: For P.No. 8, P.No. 41, P.No. 42, P.No. 43, P.No. 44, P.No. 45, P.No. 46, P.No. 49, P.No. 51, P.No. 52, P.No. 53, P.No. 61 and P.No. 62 metal, there shall be no limitation on the maximum thickness of the thicker production member in joints of similar P.No materials provided qualification was made on base metal having a thickness of 6 mm (1/4 in.) or greater (QW-202.4(b)).
- Change in P. Number Qualified (QW-403.11)
- Close button



Procedure Variables

What happens if F-number is changed...?



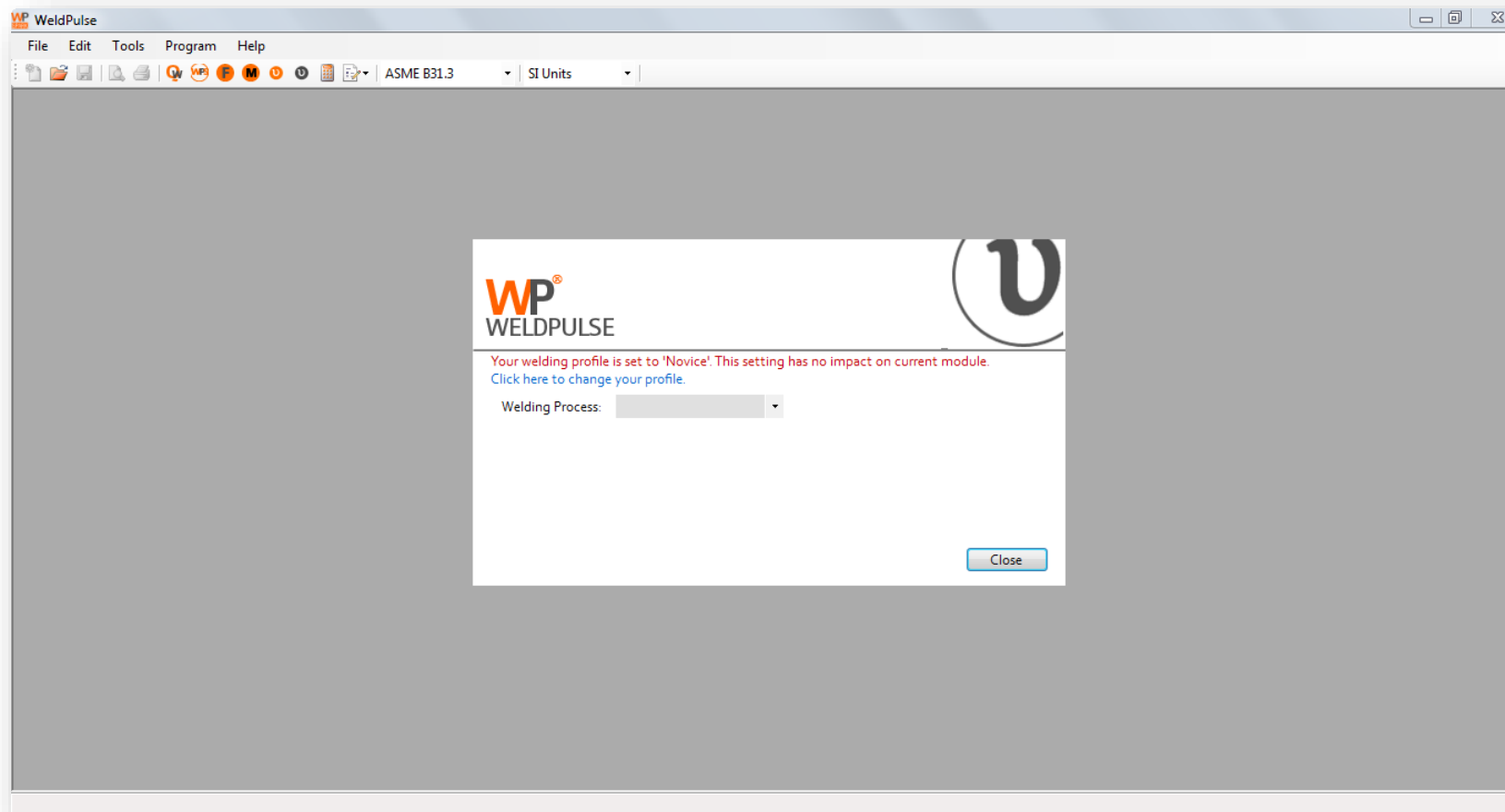


Performance Variables



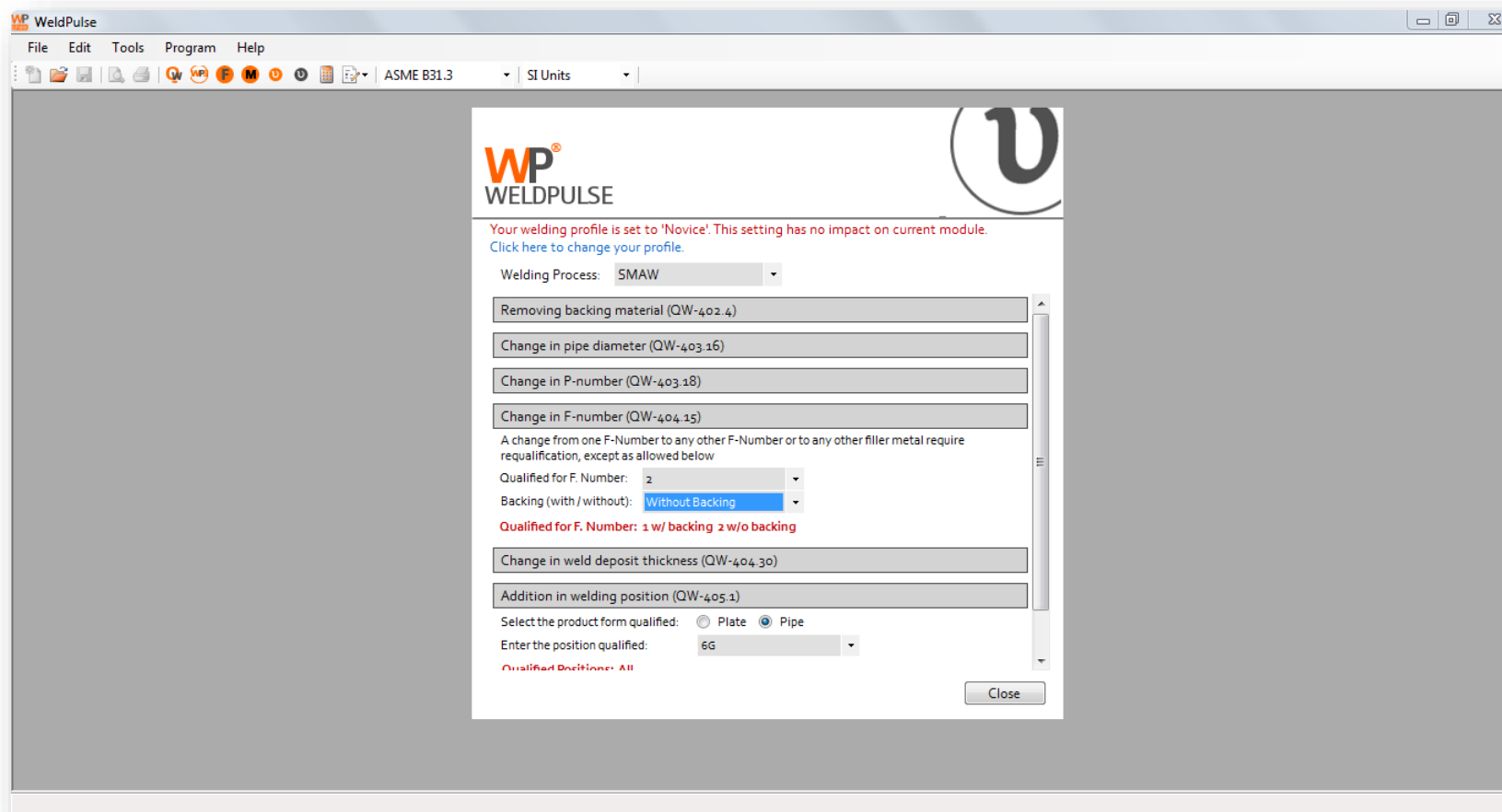
Performance Variables

Check if welder is qualified



Performance Variables

Select welding process and see the applicable variable for approval range



The screenshot shows the WP WELDPULSE software interface. The main window has a menu bar (File, Edit, Tools, Program, Help) and a toolbar. The central area displays the 'Performance Variables' dialog box. The dialog box has a title bar with the WP WELDPULSE logo and a large 'u' icon. Below the title bar, a message states: 'Your welding profile is set to 'Novice'. This setting has no impact on current module. Click here to change your profile.' The 'Welding Process' is set to 'SMAW'. Below this, there are several input fields for variables: 'Removing backing material (QW-402.4)', 'Change in pipe diameter (QW-403.16)', 'Change in P-number (QW-403.18)', and 'Change in F-number (QW-404.15)'. A note states: 'A change from one F-Number to any other F-Number or to any other filler metal require requalification, except as allowed below'. The 'Qualified for F. Number' is set to '2'. The 'Backing (with / without)' is set to 'Without Backing'. Below this, it says 'Qualified for F. Number: 1 w/ backing 2 w/o backing'. There are more input fields: 'Change in weld deposit thickness (QW-404.30)' and 'Addition in welding position (QW-405.1)'. The 'Select the product form qualified' section has radio buttons for 'Plate' and 'Pipe', with 'Pipe' selected. The 'Enter the position qualified' is set to '6G'. At the bottom, it says 'Qualified Positions: All' and there is a 'Close' button.



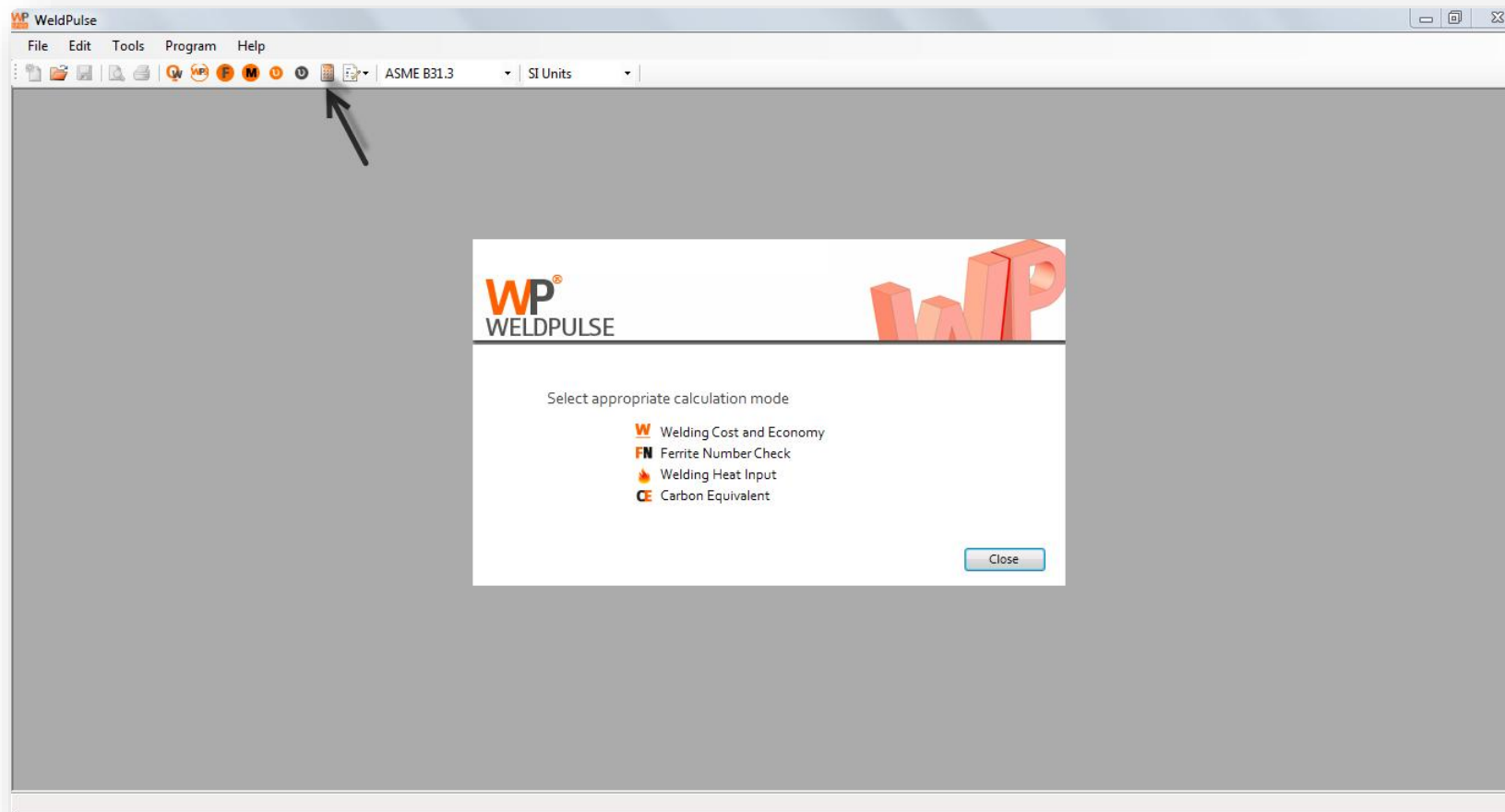


Welding Cost



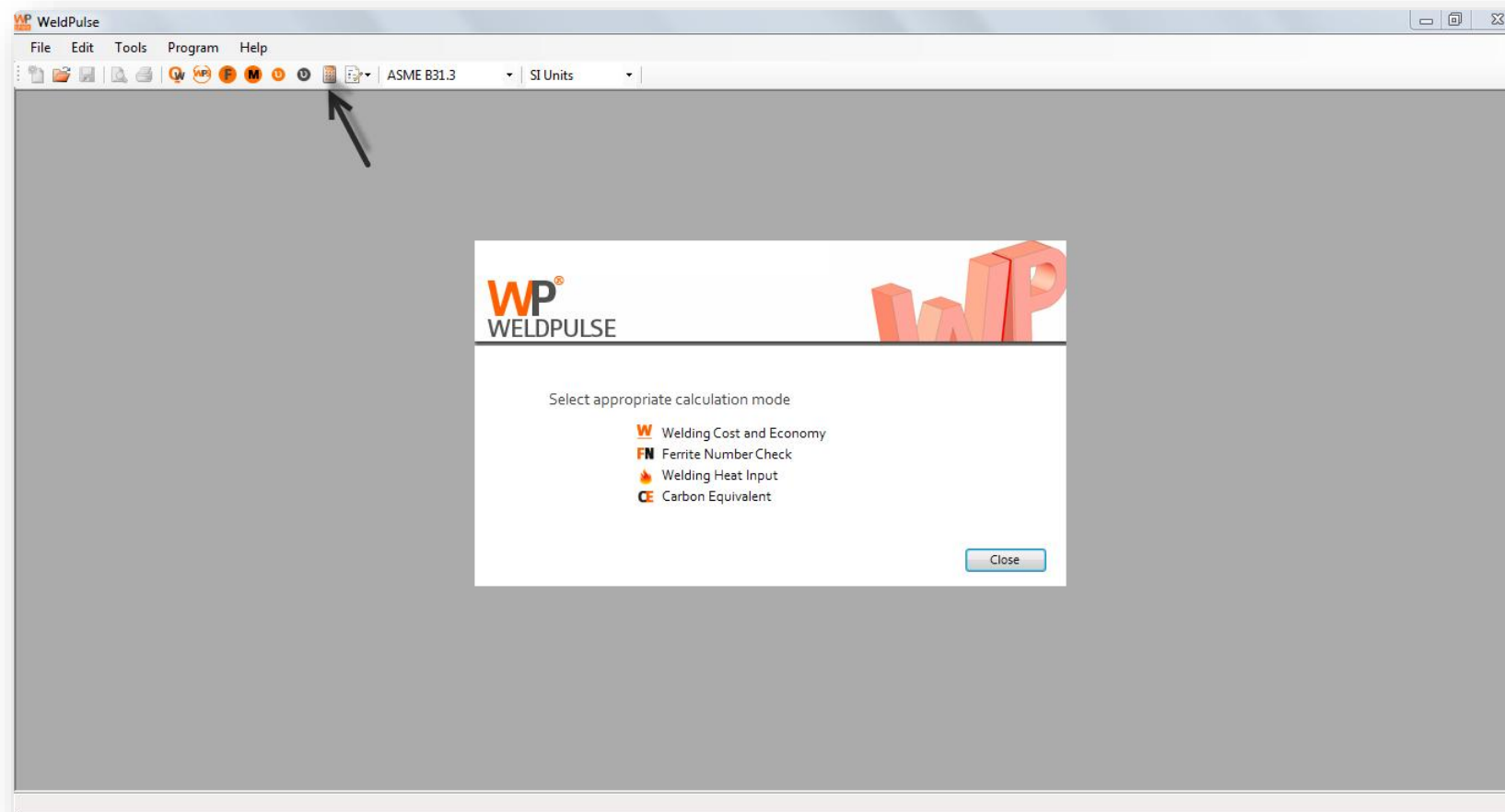
Welding Cost

WeldPulse[®] takes you stepwise in estimating welding cost for a welding job



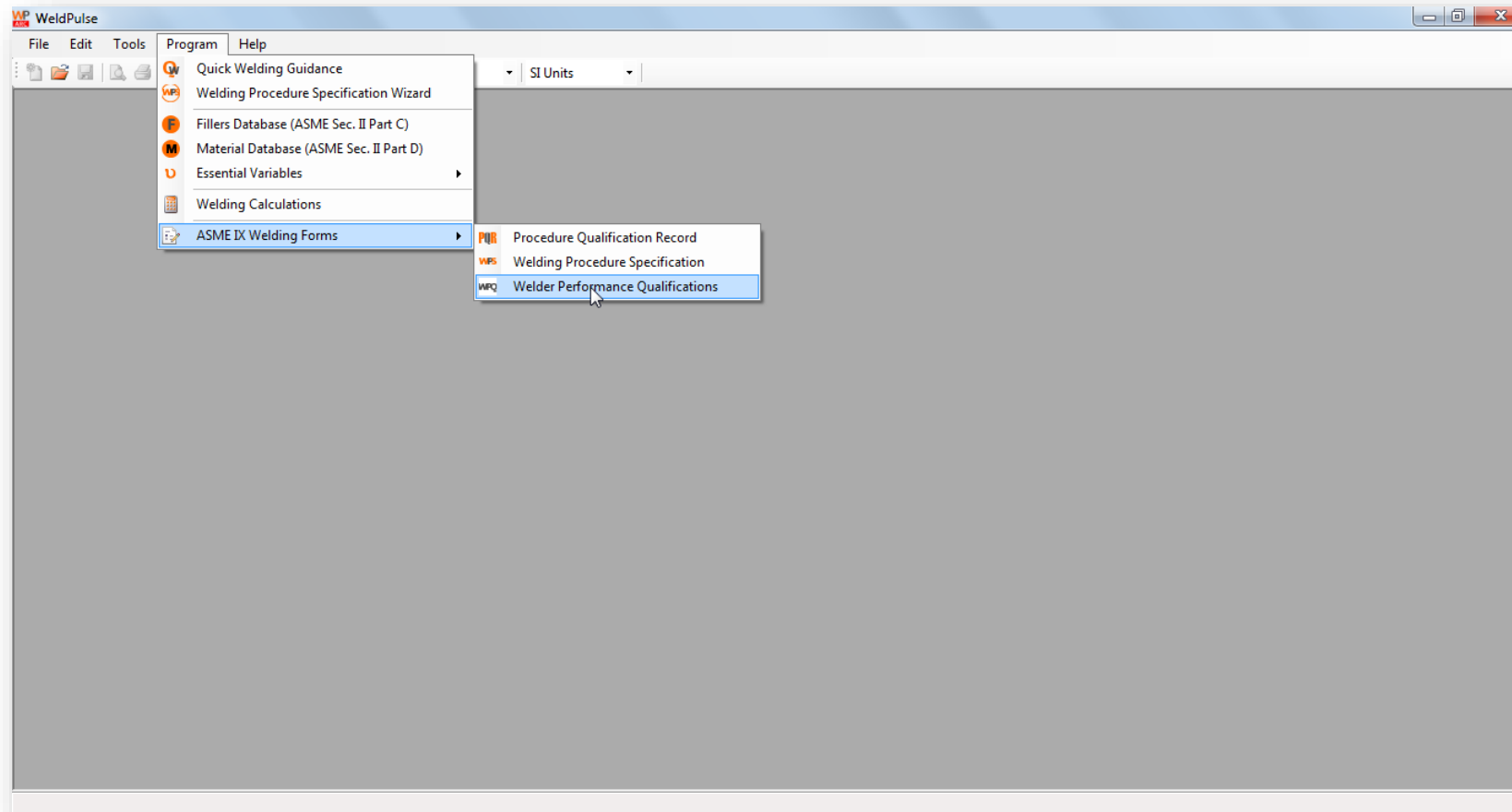
Welding Cost

WeldPulse[®] takes you stepwise in estimating welding cost for a welding job





Welder performance qualifications is an exclusive module in Arc Edition.



Form formatting made easy as
being the exact form as in ASME IX

Automated approval range
calculation as soon as input is given

Saving and printing options to save
data in the software



Example of a filled form is shown here:

The screenshot displays the WPQ (Welder Performance Qualifications) software interface. The title bar indicates 'WP WeldPulse' and the menu bar includes 'File', 'Edit', 'Tools', 'Program', and 'Help'. The status bar shows 'ASME B31.3' and 'British Units'.

The main form is titled 'WELDER PERFORMANCE QUALIFICATIONS' and 'PetroStreet'. It contains the following sections:

- Welder's name:** John Smith
- Identification number:** PS-WPQ-01A
- Test Description:**
 - Identification of WPS followed: WPS-P8-P8-03
 - Specification and type/grade or UNS Number of base metal(s): SA312 Gr. 304 to itself
 - Thickness: 8 mm
 - ☒ Test Coupon ☐ Production Weld
- Testing Variables and Qualification Limits:**

Welding Variables (QW-350)	Actual Values	Range Qualified
Welding process(es): GTAW	GTAW	GTAW
Type (i.e., manual, semi-automatic) used: Manual	Manual	Manual / Semi-Automatic
Backing (with / without): Without Backing	Without Backing	With or without backing
Base metal P-Number to P-Number: 4	4	2.875 in. min. to unlimited
Filler metal or electrode specification(s) (SFA) (info. only): ER308	ER308	1-15F34, 44-49
Filler metal F-Number(s): 6	6	6
Consumable insert (GTAW or PAW): Without Insert	Without Insert	Without Insert
Filler Metal Product Form (solid/metal or flux cored/powder): Bare (solid)	Bare (solid)	Bare (solid) or metal cored
Deposit thickness for each pass: 4	4	8
Process 1: GTAW 3 layers minimum <input checked="" type="radio"/> Yes <input type="radio"/> No	GTAW	GTAW
Process 2: 3 layers minimum <input checked="" type="radio"/> Yes <input type="radio"/> No	GTAW	GTAW
Position qualified (2G, 6G, 3F etc.): 6G	6G	All
Vertical progression (uphill or downhill): Uphill	Uphill	Uphill
Type of fuel gas (OFW): with inert gas backing	with inert gas backing	With inert gas backing only
Inert gas backing (GTAW, PAW, GMAW): NA	NA	NA
Transfer mode (spray/globular or pulse to short circuit-GMAW): AC	AC	AC
GTAW Current Type / Polarity (AC, DCEP, DCEN): AC	AC	AC

The 'Results' section at the bottom indicates 'WPQ module loaded and running...'.

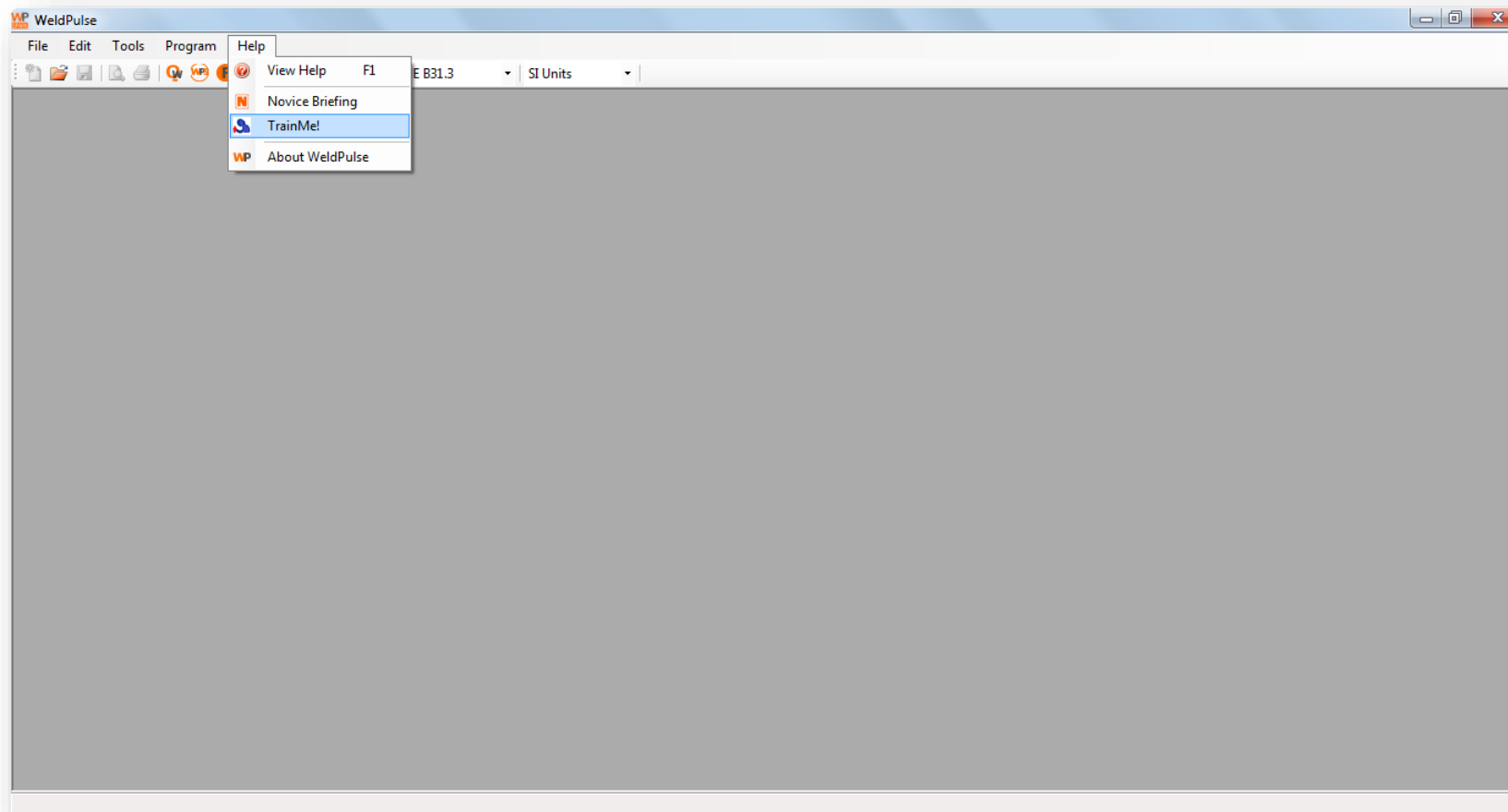




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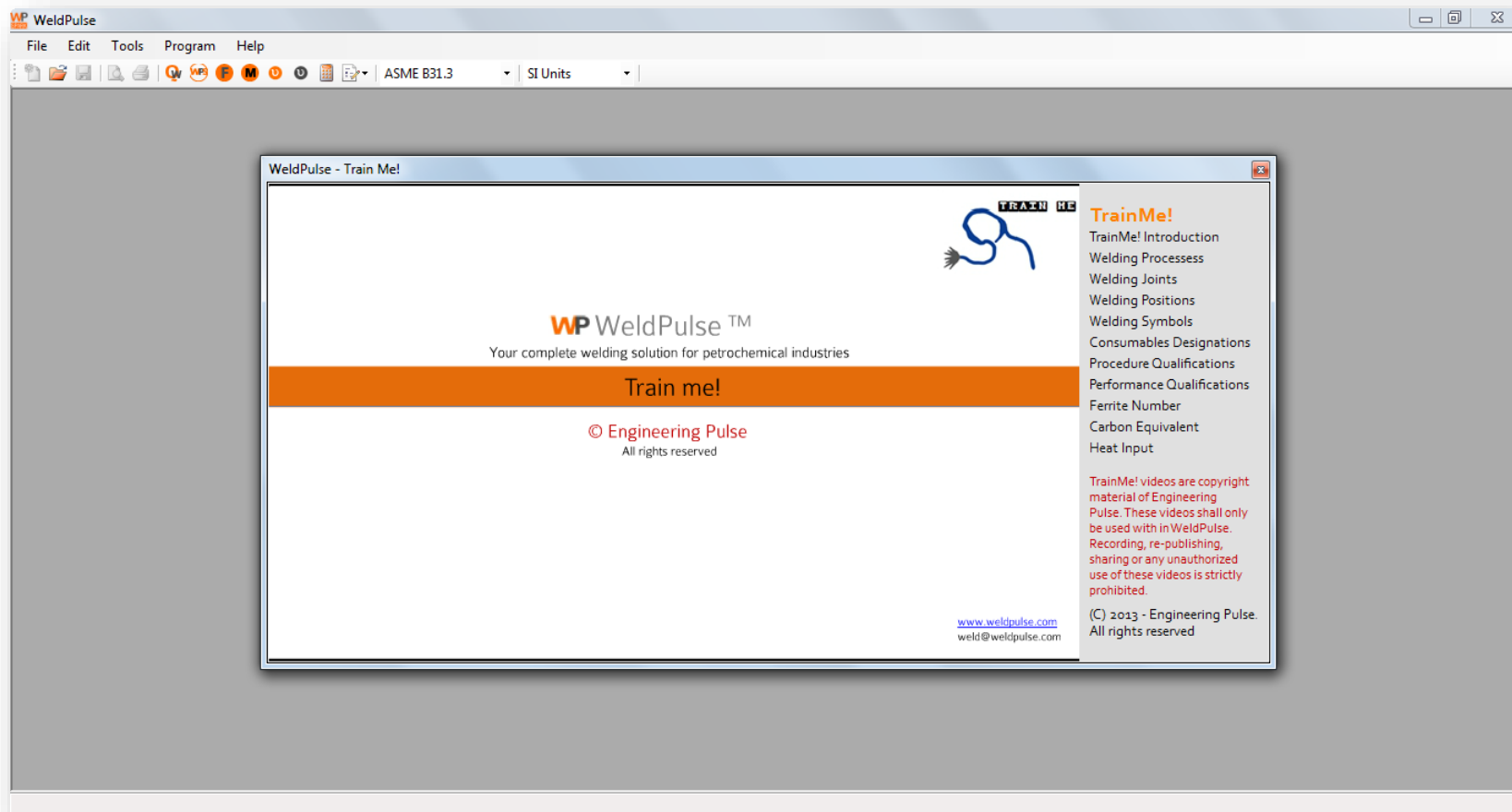


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