1.0 PURPOSE

This document outlines the recommended safe procedure for using the LECO BG-32 belt grinder.

2.0 SCOPE

This procedure applies to all personnel who use the Leco belt grinder for sample preparation.

3.0 REFERENCES

EQ.MA-MS3-03-14 Instruction Manual for BG-32 Belt Grinder.

4.0 DEFINITIONS

Leco - Leco Corporation

5.0 PROCEDURE

5.1 SAFETY ASPECTS

Safety glasses must be worn when operating the belt grinder.

Avoid wearing loose fitting clothing particularly sleeves when operating the belt grinder.

When gripping sample ensure fingertips are positioned well away from the finishing belt.

Completely isolate the machine from the power supply when intending to change the belt or carry out any maintenance.
5.2 MACHINE OPERATION

For all machine belt grinder features refer BG-32 Instruction Manual and Figure 1.

Ensure adequate grinding surface still available on belt. Change belt if it is torn or worn out refer section 5.5.

Check that the power on/off circuit breaker on the rear panel of the BG-32 in the on (up) position.

Make sure nothing has been placed on top of the abrasive belt and pull the start/stop switch, on the front panel, out one position. The belt will begin to rotate.

After several seconds, pull the start/stop switch, on the front panel, out to the next position to turn the accessory on.

**NOTE:** Always pull the start/stop switch out one position at a time. Otherwise it may trip the circuit breaker.

Centralise linishing belt if necessary, using belt tracking adjustment knob, clockwise moves belt to right, anti-clockwise moves belt to left. Off centre belt cuts into machine frame.

Belt Tracking Adjustment Knob Jamnut - This jamnut is used to lock the belt tracking adjustment knob in position and eliminate the possibility of accidentally altering belt tracking. (Turning knob counterclockwise locks tracking knob.)

Adjust the coolant flow by turning the flow knob on the front panel until the desired flow is achieved.

**NOTE:** Water supply comes from a recirculating tank refer 5.6.1.

The amount of water must be kept to a minimum to avoid splashing and belt drag.

5.3 GRIPPING THE SAMPLE

First linish off carefully all sharp edges from the sample.

Grip sample firmly with the face to be finished on the bottom.

*Ensure fingertips are positioned so as to be well away from linishing belt.*
5.4  **LINISHING THE SAMPLE**

Apply face to be linished to the linishing belt carefully.

Water supply to belt may need to be adjusted if splashing occurs.

Press firmly for a few seconds.

With most samples, it is advisable to use the full belt width by gradually moving the sample to and fro.

Repeat the above steps until face is sufficiently linished.

Use differential pressure if necessary to keep bottom and top faces parallel. Parallel surfaces enable easier microscopic examination and any subsequent hardness testing.

Linish off any protrusions from the face opposite the linished one especially any protrusions associated with micro identification. This minimises vibration on subsequent instrumentation.

If during the linishing operation water is noticed to be seeping from the unit, stop immediately and notify appropriate Technical staff responsible for unit.

*If a sample slips from the operator’s hands, immediately depress the start/stop switch all the way. Do not attempt to retrieve the sample until the belt has stopped.*

The circuit breakers on the rear of the BG-32 provide overload protection for the BG-32 and the accessory unit connected to the rear of the instrument. In the event of an overload condition that trips a circuit breaker, allow the heat to dissipate for 2 to 3 minutes before resetting the circuit breaker.

An overload relay protects the motor. If this relay trips, it may take a couple of minutes for this overload relay to reset.

5.5  **BELT INSTALLATION AND ADJUSTMENT**

5.5.1  Open either the left or right side panels by rotating both latches 90 degrees then lifting cover to open.

5.5.2  Lift the sump assembly safety cover to access the belt drive mechanism (Figure 2).
5.5.3 Remove the belt release lever from its storage cradle and insert it into the belt release cam shaft (Figure 2).

5.5.4 Rotate the belt release lever clockwise 180° to release the belt pulley tension.

5.5.5 Note the directional arrows on the reverse side of the abrasive belt. When installed, the belt will rotate clockwise. Slide the belt over the pulleys so that the belt will rotate in the direction of the arrows.

5.5.6 Centre the belt on the platen and then rotate the belt release lever counterclockwise 180° to restore belt tension.

5.5.7 Remove the belt release lever and place it back in its storage cradle.

5.5.8 Close the sump assembly safety cover (release locking pin).

5.5.9 Close either the left or right side panel and secure it by rotating and closing the latches.

5.5.10 Adjust the belt tracking as follows:

a) Turn the jamnut on the belt adjustment knob (Figure 1) all the way up (clockwise).

b) Make sure the start/stop switch on the front panel (Figure 1) is completely depressed.

c) Place the power on/off circuit breaker on the rear panel of the BG-30 in the on (up) position.

d) Make sure nothing has been placed on top of the abrasive belt and pull the start/stop switch out one position. The belt will begin to rotate.

e) Use the belt adjust knob on the top of the BG-30 to adjust the belt to the centre of the platen. Slowly turn the knob clockwise to move the belt to the right or counterclockwise to move the belt to the left.

f) After the belt is centred, turn the jamnut on the belt adjustment knob counterclockwise to lock the knob in position. Make sure the belt adjustment knob is not turned when turning the jamnut.
5.6 **MAINTENANCE AND HOUSEKEEPING**

Wipe off any overspray from machine and or immediate area.

The swarf which collects in the belt area sump must be washed away regularly. This is accomplished by opening hinged cover then flushing swarf down the drain hole using a suitable wash bottle. If large accumulations have been allowed to build up, remove these prior to flushing, to avoid blocking the recirculating system.

5.6.1 **Coolant Recirculation System**

The tank should be filled with cooling fluid (see appropriate Technical staff for coolant).

Regular changing of the coolant and cleaning of the tank is recommended to avoid the system, particularly the jets, becoming clogged. With normal daily usage, monthly changing of the fluid is desirable.

For further information regarding machine maintenance refer EQ.MA-MS3-03-14.

6.0 **REFERENCE PERSONNEL LIST**

Prior to amending this standard procedure refer proposed amendments to:

Technical Staff in charge

7.0 **DOCUMENTATION**

Figure 1 - Main Belt Grinder Controls
Figure 2 - Right side view of grinder for belt installation
FIGURE 2

RIGHT SIDE VIEW FOR BELT INSTALLATION