OXSAS software option for Thermo Scientific OES and XRF spectrometers   PRODUCT SPECIFICATIONS

Charge Correction

Charge Correction calculates the weight of materials to be added to a furnace charge to bring an out of specification material within limits. This Charge Correction procedure is cost optimized and will select the lowest cost mix of materials that should be added to the charge to bring it within the grade specification limits.
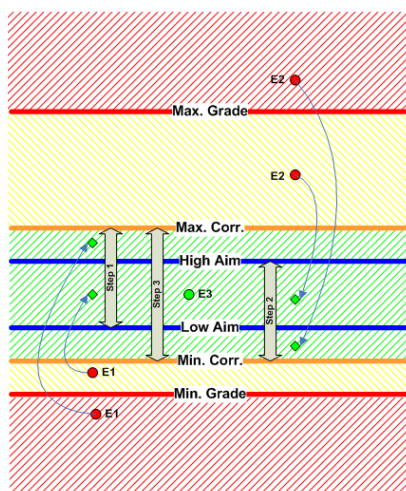
Charge Correction

When charge additions are calculated manually, expensive, nearly pure, materials are used in the calculation as this provides a quicker and easier solution. However, by using the OXSAS Charge Correction option, a lower cost and more accurate solution will be found, in a shorter time than when calculated manually. This provides some very useful operational benefits.

Charge Correction is used after a sample from the charge to correct has been analyzed. Should this analysis be found to be outside specification, then the Charge Correction can be calculated automatically. Alternatively the user can choose whether to carry out the calculation after the analysis or not.

In both cases, a report listing the materials to be added, the specification limits and the expected final concentration will be displayed locally and can also be sent to a display terminal or printer located where the materials are added.

Procedures

The Charge Correction procedure can be started when element concentrations are outside the specification limits. However to be more confident that the resulting charge will meet the specification limits, it is possible to set tighter limits than these specification limits. The Charge Correction calculation will then be carried out, if the concentration would be outside these stricter limits. Similarly, aim limits can be defined which will be used as the target limits for the correction calculation and they can also be set tighter than the correction limits to provide an additional safety margin.

The charge correction steps

The charge correction procedure is basically executed in three stages (see Figure 1):

- Step1: All elements that are below the Minimum Correction Limit will be brought up between the Low Aim and the Maximum Correction Limit (Elements E1 in Figure 1)

- Step 2: If a dilution is necessary and allowed, then all elements, which are still above the Maximum Correction Limit before this dilution is applied, will be diluted in such a way that their concentrations are between the Minimum Correction Limit and the High Aim concentration (Elements E2)

- Step 3: All elements that lie initially, or before the dilution between the Minimum and Maximum Correction Limits are corrected in such a way that they do not leave this range (Element E3).

Figure 1: Charge correction steps

The Charge Correction of OXSAS calculates the least amount of materials to be added to the charge for the least cost. Alternatively, it is possible to fix a final target furnace weight rather then a least amount of material addition. In both cases, a maximum furnace weight can be defined to avoid any overflow on this furnace capacity.

Configuring

Many configuration facilities allow Charge Correction to be set up to meet the specific operational requirements.

- If any element exceeds its upper specification limit, then it is possible to choose whether the correction should dilute the charge to reduce the concentration to below this limit or not

- Losses of any element added to the charge can be taken into account by defining a Recovery Factor

- A maximum amount of a particular material, allowed to correct a charge can be defined

- Some materials can be defined as more desirable by changing their apparent cost when the charge additions are calculated

- Materials can be grouped and each group allocated to a charge quality specification. Only materials from this group will be considered for the correction of this charge

- Unlimited number of elements using unlimited number of stock materials can be handled in a single calculation

- Final Charge Correction report can be tailored at will (see Figure 2).

Automatic Grading, Charge Correction and materials group file selection

At the end of the sample analysis, grade checking followed by Charge Correction materials group selection can be done manually by the operator or in a fully automatic manner with criteria's based on:

- The Sample Identity

- The Task, the Method, the Type Standard or the Grade name used to perform the sample analysis

- The concentration level of element(s) in the final sample analysis result

- … and many other possibilities

The dispatch of the sample analysis result with the final charge correction report to printers or video displays can also be done in a full automatic manner if desired.
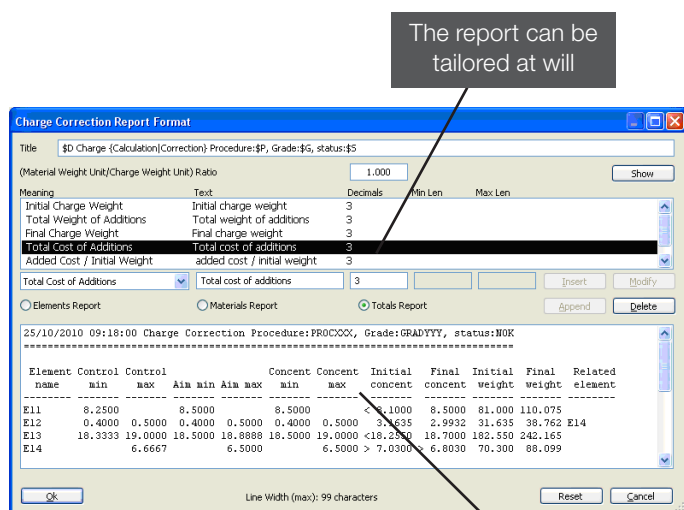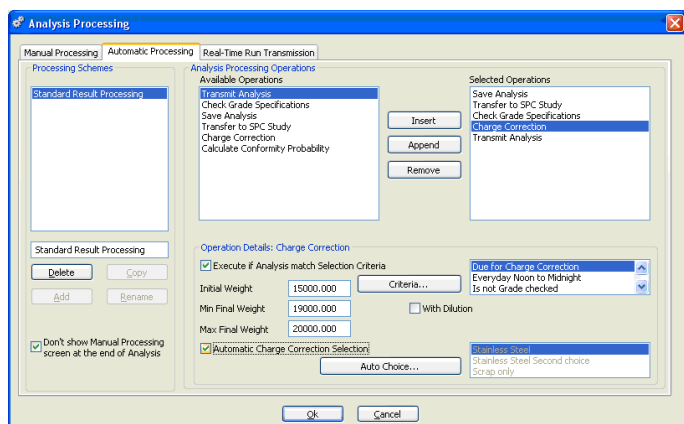
The report can be tailored at will

Figure 2: The charge report editor

Live example helping the configuration

Analysis processing for a Charge Correction

Find out more at **thermofisher.com/oxsas**

Thermo Fisher
S C I E N T I F I C