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Swedish instructions for timber measurement

Quality requirements for pulpwood



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1 Introduction

1.1 Swedish instructions for timber measurement and associated legislation

Swedish instructions for timber measurement are adopted by the SDC board on the basis of recommendations from RMR (Council for Measurement and Reporting) and the VMK Council. Documentation for RMR is prepared by the SDC department for timber measurement development (VMU), working in close collaboration with regional partner organisations represented by the three timber measurement associations. Timber measurement companies authorised by the VMK Council are recommended to apply the Swedish regulations. In certain cases, the Swedish instructions may be supplemented with specific provisions in business contracts.

Rules and regulations concerning control of timber measurement, in addition to what is described in this document, are presented in separate documents. Current versions of measurement instructions and control documents can be found at www.sdc.se, under the tab 'Virkesmätning'.

Timber measurement in Sweden is regulated by the Timber Measurement Act (SFS 2014:1015) and the regulations of the Swedish Forest Agency (SKSFS 2014:11). The legislation is described more in detail in the document 'General information concerning Swedish instructions for timber measurement'.

1.2 Applicability of these instructions

These instructions apply when measuring pulpwood, defined as roundwood intended for production of pulp. Examples of pulpwood assortments are shown in the following table. Assortments such as hardwood pulpwood may, on agreement, be subdivided into species or species groups.

Assortment	Species
Spruce pulpwood	Spruce (<i>Picea abies</i>). Sitka spruce may be included on agreement
Softwood pulpwood	Any mix of softwoods, unless otherwise stated
Birch pulpwood	Birch
Aspen pulpwood	Aspen and poplar
Beech pulpwood	Beech (<i>Fagus silvatica</i>), maple, mountain ash and Swedish whitebeam
Alder pulpwood	Alder. Occasional logs of other hardwoods, except oak and elm, are allowed
Hardwood pulpwood	Any hardwoods, except oak and elm, unless otherwise agreed
Mixed pulpwood	Species according to contract

The instructions only specify quality requirements. Rules concerning volume measurement of logs or stacks, and detailed instructions on how to measure specific properties, are described in other instructions.

1.3 Basic requirements for measuring a consignment of pulpwood

The consignment is to be inspected before measurement. Measurement will be refused if assortment specifications or prerequisites for measurement, such as identification of the consignment, do not meet agreed specifications. Each stack must fulfil the quality requirements as specified in Chapter 2.

If measurement is refused because agreed conditions have not been met, buyer and seller are to be informed immediately and notified of the reason for the refusal.

Where a delivered consignment of imported roundwood is suspected to contain toxic or radioactive substances, the buyer of the consignment is to be notified and an investigation initiated.

2 Quality requirements regarding stacks

When measuring pulpwood in stacks the proportion of reject logs is determined. This proportion may be estimated from the visible sides of the stack. The logs that are exposed are to be regarded as a sample from which the proportion of reject logs is estimated. Measurement of a stack is refused if specifications stated below are not met.

2.1 Contamination

The stack must not contain coal, soot, plastics, rubber, stones or metal. Wood or bark may not contain significant quantities of embedded gravel (the fraction size of gravel is 2-20 mm and of stones > 20 mm). The wood must not be impregnated or painted.

No more than 5 % of the logs in the stack may be contaminated with mineral soil. A log is classified as contaminated if more than half of the end surfaces and more than half of the log length is contaminated with soil.

2.2 Freshness

Pulpwood is regarded as fresh if the bark is easily removed and/or the moisture content of the wood exceeds a specified minimum. If the freshness is in doubt, the wood must be examined. Wood is always regarded as fresh up to three weeks after felling.

Freshness is recorded at stack level, and at least 90 % of the stack volume should meet the freshness requirement. Spruce pulpwood must always be fresh, and other pulpwood assortments must be fresh if stipulated in the contract. Pulpwood can, on agreement, be traded as 'not fresh'.

2.3 Delimiting

The stack must not contain more than 10 % logs with attached broken branches that are thicker than 16 mm, assuming that the solid part of the attached branch is no larger than 12 cm for spruce pulpwood or 16 cm for other pulpwood assortments.

2.4 Proportion of reject logs

The proportion of reject logs must not exceed 15 % of the gross volume in a single stack. Rejects due to incorrect species must not exceed 5 %. For spruce pulpwood, a single stack must not contain more than 10 % rejects due to forest rot.

3 Quality requirements regarding logs

A pulpwood log is rejected if requirements described below are not met. Volume deduction is made for forest rot present, but below the reject limit. When measuring stacks, visible logs are regarded as a sample from which the proportion of reject logs may be estimated.

3.1 Contamination

A pulpwood log must not contain coal, soot, plastics, rubber, stones or metal. Neither wood nor bark may contain significant quantities of gravel (the fraction size of gravel is 2-20 mm and of stones > 20 mm). Logs must not be impregnated, painted, or processed, and must not have been extensively used for other purposes. 'Processed' does not include debarking.

3.2 Dimensions

A log must fulfil certain minimum and maximum size requirements.

- Minimum diameter: 5 cm under bark at minimum length.
 Maximum diameter: 70 cm under bark (at any point along the log).
 Minimum length: For wood cut to standard length: standard length – 30 cm.
 For wood cut to varying lengths: 290 cm (270 cm for VMF Nord).
 Maximum length: For wood cut to standard length: standard length + 30 cm.
 For wood cut to varying lengths: 580 cm.

A log that does not fulfil the length requirement, or whose diameter is less than 5 cm under bark at minimum length, is recorded as a reject. Where a log has a diameter of 5 cm at minimum length but a top diameter of less than 5 cm, the section with a diameter less than 5 cm is not recorded. A log with a diameter of less than 5 cm at a length of 150 cm is regarded as logging residue and is not recorded.

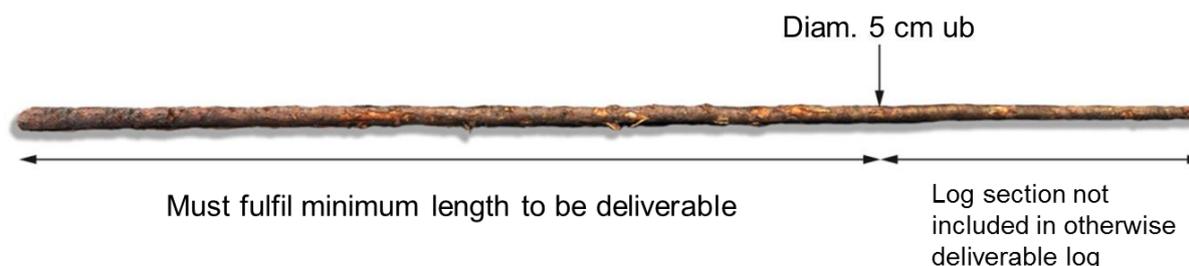


Figure 1. Where a log has a diameter of 5 cm at minimum length but a top diameter of less than 5 cm, the section where the diameter is less than 5 cm is not recorded.

3.3 Preparation

3.3.1 Living stem section

A pulpwood log should be cut from a living stem section. A stem section is regarded as living if nutrients are transported in more than 50 % of the circumference of the cross-section.

3.3.2 Delimiting

The log should be satisfactorily delimited, i.e. the branches should be cut off close to the log surface. Branch stubs must not exceed the following dimensions:

Branch diameter under bark	Branch height
≤ 15 mm	Unlimited
16+ mm	< 12 cm spruce pulpwood
	< 16 cm other assortments

Branch height is defined as the perpendicular distance from the log surface under bark to the tip of the branch. A branch that is broken off but still attached to the stem should not be measured for height if its resistance when bending is less than that of an unbroken branch with a diameter of 15 mm under bark.



Figure 2. Measurement of branch height.

3.3.3 Open fork

Open forks are allowed if its height is less than 12 cm (spruce pulpwood) or less than 16 cm (other pulpwood assortments).



Figure 3. Measurement of open fork.

3.3.4 Buttress and other unevenness

The largest diameter of a log must not exceed the butt end diameter by more than 30 cm, and the maximum diameter may not exceed 70 cm. The butt end diameter is measured 10 cm from the butt end on top and middle logs, and 50 cm from the butt end on butt logs.

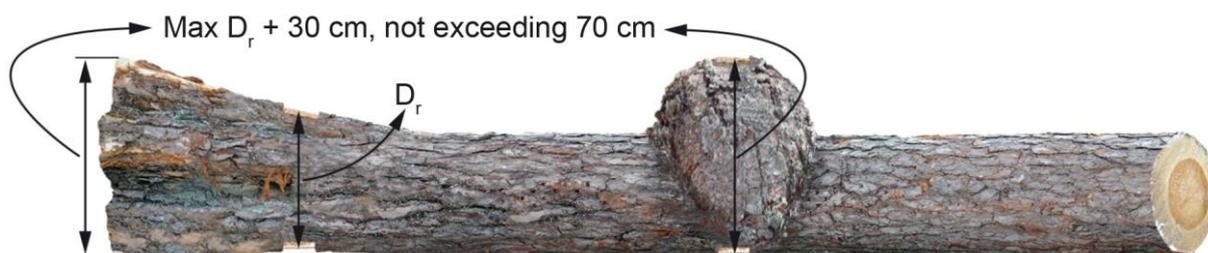


Figure 4. Limits for buttress and other unevenness.

3.3.5 Width of crook

The width of a crook must not exceed the largest diameter of the log by more than 30 cm, nor the maximum allowed pulpwood diameter by more than 10 cm. Width of crook is defined as the diameter of the smallest cylinder, with a length equal to the log length, through which the log can pass.

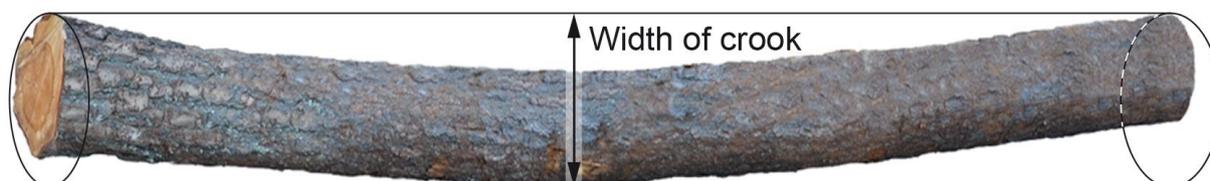


Figure 5. Measurement of width of crook.

3.4 Forest rot and storage decay

3.4.1 Reject limits

Product	Maximum forest rot as % of log end surface (under bark)	Maximum area of storage decay at a cross section (under bark) 15 cm from log end
Spruce pulpwood	10 %	0 %
Other pulpwood assortments	67 %	10 %

Logs where rot or decay exceeds the limits stipulated in the above table are rejected. For pulpwood assortments other than spruce pulpwood, logs with 10 to 33 % storage decay at cross section may, on agreement, be traded as 'storage decayed'.

3.4.2 Deduction for forest rot in accepted logs

When measuring log-by-log, the percentage rot is determined in the end surface of the log. When measuring stacks, the percentage rot is determined in the end face of the stack. The surface percentage can be converted to volume using agreed conversion factors.

4 Control measurement

Stack measurement, weighing

Control measurement should be performed as manual log-by-log measurement of randomly selected stacks. The control may be performed at a later stage if the uniformity of the stack can be guaranteed.

Log-by-log measurement

Control measurement should be performed as manual measurement of randomly selected logs.

Results may be presented per measurement station, time period, etc. as:

- Volume difference (control of stack measurement)
- Percentage correctly graded logs (control of log-by-log measurement)
- Grading value quotient. Total value from first measurement divided by total value from control measurement. Differences in volume determination are not included when calculating grading value quotient
- Total value quotient. Includes both grading and volume differences.

Estimations of value quotients should be based on average prices from a sample of relevant price lists.

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The Swedish instructions are published on the SDC website (www.sdc.se).



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