

C13B

PRODUCTION OF SUCROSE; APPARATUS SPECIALLY ADAPTED THEREFOR (chemically synthesised sugars or sugar derivatives [C07H](#); fermentation or enzyme-using processes for preparing compounds containing saccharide radicals [C12P 19/00](#))

Definition statement

This place covers:

Reducing the size of material from which sugars are to be extracted; Presses and knives therefor,

Production and purification of sugar juices, e.g. juices derived from beet, cane or maple,

Expressing water from material from which sugars have been extracted,

Evaporators or boiling pans specially adapted for sugar juices; Evaporating, or boiling sugar juices,

Crystallisation; Crystallising apparatus; Separating crystals from mother liquors,

Extraction of sucrose from molasses; Extraction apparatus,

Drying sugar,

Cutting machines, combined cutting, sorting, and packing machines specially adapted for sugar, or

Sugar products, i.e. physical forms of sugar, such as powdered, lump or liquid sugar; Working-up of sugar

Relationships with other classification places

Chemically synthesised sugars or sugar derivatives are classified in [C07H](#)

Naturally-occurring saccharides, other than sucrose, are classified in [C13K](#)

Preparation of cellulose derivatives are classified in [C08B 1/00-C08B 17/00](#).

Fermentation or enzyme-using processes for preparing compounds containing saccharide radicals [C12P 19/00](#)

Food or foodstuff containing carbohydrate syrups; containing sugars; containing sugar alcohols, e.g. xylitol; containing starch hydrolysates, e.g. dextrin [A23L 29/30](#), artificial sweetening agent [A23L 27/30](#)

References

Limiting references

This place does not cover:

Harvesting of sugar beets	A01D 11/02 , A01D 13/00 , A01D 25/00
Harvesting of sugar-cane	A01D 45/10
Tapping of tree-juices	A01G 23/10
Tapping-spouts, Receptacles for juices	A01G 23/14
Sweetmeats, Confectionery	A23G 3/00
Foods containing carbohydrate syrups, sugars, sugar alcohols or starch hydrolysates	A23L 29/30
Extraction of starch	C08B 30/02 , C08B 30/04

Pressing water from starch-extracted material	C08B 30/10
Fermentation or enzyme-using processes for preparing compounds containing saccharide radicals	C12P 19/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Boiling apparatus	B01B
Separation	B01D
Crushing, pulverizing, or disintegrating in general	B02C
Centrifuges	B04B
Hand-held cutting tools not otherwise provided for	B26B
Cutting in general	B26D
Presses in general	B30B
Storing in general	B65D
Obtaining or extracting cellulose for the purpose of making paper	D21C
Drying in general	F26B

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Aldose	An aldose is a monosaccharide (a simple sugar) containing one aldehyde group per molecule and having a chemical formula of the form $C_n(H_2O)_n$ ($n \geq 3$). With only 3 carbon atoms, glyceraldehyde is the simplest of all aldoses. Aldoses isomerise to ketoses in the Lobry-de Bruyn-van Ekenstein transformation. Aldose differs from ketose in that it has a carbonyl group at the end of the carbon chain whereas the carbonyl group of a ketose is in the middle; this fact allows them to be chemically differentiated through Seliwanoff's test.
Disaccharide	A disaccharide is a sugar (a carbohydrate) composed of two monosaccharides. 'Disaccharide' is one of the four chemical groupings of carbohydrates (monosaccharide, disaccharide, oligosaccharide and polysaccharide).
Hexose	A hexose is a monosaccharide with six carbon atoms having the chemical formula $C_6H_{12}O_6$.
Ketose	A ketose is a sugar containing one ketone group per molecule. With 3 carbon atoms, dihydroxyacetone is the simplest of all ketoses and is the only one having no optical activity. Ketoses can isomerise into an aldose when the carbonyl group is located at the end of the molecule. Such ketoses are reducing sugars.

Monosaccharide	Monosaccharides (from Greek monos: single, sacchar: sugar) are the most basic unit of carbohydrates. They consist of one sugar and are usually colorless, water-soluble, crystalline solids. Some monosaccharides have a sweet taste. Examples of monosaccharides include glucose (dextrose), fructose, galactose, xylose and ribose. Monosaccharides are the building blocks of disaccharides such as sucrose (common sugar) and polysaccharides (such as cellulose and starch).
Oligosaccharide	An oligosaccharide is a saccharide containing less than six monosaccharides. The name derived from the Greek oligos, meaning "a few".
Pentose	A pentose is a monosaccharide with five carbon atoms.
Polysaccharide	Polysaccharides are polymers containing more than five monosaccharides joined together by glycosidic bonds. They are therefore very large, often branched, macromolecules. They tend to be amorphous, insoluble in water and have no sweet taste. When all the monosaccharides in a polysaccharide are the same type, the polysaccharide is called a homopolysaccharide, but when more than one type of monosaccharide is present, they are called heteropolysaccharides. Examples include storage polysaccharides such as starch and glycogen and structural polysaccharides such as cellulose and chitin.
Saccharose	Synonym for sucrose
Sucrose	Sucrose (common name: table sugar, also called saccharose) is a disaccharide of glucose and fructose, with the molecular formula $C_{12}H_{22}O_{11}$. Its systematic name is α -D-glucopyranosyl- (1 \leftrightarrow 2)- β -D-fructofuranoside (ending in "oside", because it's not a reducing sugar).
Sugar	Sugar is a class of edible crystalline water-soluble carbohydrates that vary widely in sweetness and typically are optically active, including the mono-, di- and oligosaccharides (e. g. sucrose, lactose, and fructose). Sugar as a basic food carbohydrate primarily comes from sugar cane and from sugar beet, but also appears in fruit, honey, sorghum, sugar maple (in maple syrup), and in many other sources. It forms the main ingredient in much candy. In non-scientific use, the term sugar refers to sucrose (also called "table sugar" or "saccharose") — a white crystalline solid disaccharide. In this informal sense, the word "sugar" principally refers to crystalline sugars.

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "saccharose" and "sucrose"

C13B 5/00

Reducing the size of material from which sugar is to be extracted (for extraction of starch [C08B 30/02](#))

Definition statement

This place covers:

Methods for reducing the size of material from which sugar is to be extracted and not disclosed in the subgroups

Mechanical means to minimize the length, width or thickness of the sugar stock other than the ones disclosed in the subgroups.

C13B 5/02

Cutting sugar cane

Definition statement

This place covers:

The cutting of sugar cane, whatever type of cutting, i.e. penetrating cane with an edged instrument.

C13B 5/04

Shredding sugar cane

Definition statement

This place covers:

The shredding of sugar cane, shredding producing long narrow strips or fragments.

C13B 10/00

Production of sugar juices (tapping of tree-juices [A01G 23/10](#); tapping-spouts, receptacles for juices [A01G 23/14](#))

Definition statement

This place covers:

Production of sugar juices, sugar juices being solutions of sugar, comprising mainly sucrose, glucose, fructose which are derived from different plants, e.g. beet, cane

C13B 10/003

{using chemicals other than extracting agents}

Definition statement

This place covers:

Chemical agents can be for example preservative or antioxidants to avoid oxidation of some components in the sugar juices

Extracting agents being for example water

Relationships with other classification places

a chemical compound that has also the function of preserving will be classified in [C13B 10/003](#) and [C13B13/006](#)

C13B 10/006

{Conservation of sugar juices}

Definition statement

This place covers:

Any methods, agents used to preserve the sugar juices, e.g. use of preservative, pH, low temperature

C13B 10/02

Expressing juice from sugar cane or similar material, e.g. sorghum saccharatum

Definition statement

This place covers:

Juice from sugar cane e.g. sorghum saccharum or from same plant family

C13B 10/04

combined with imbibition

Definition statement

This place covers:

Production of sugars juices by expressing juice form sugar cane combined with imbibition, the imbibition being the displacement of one liquid with another liquid, e.g. by adding hot water

C13B 10/107

{with transportation in the form of thin layers, e.g. by endless chains}

Definition statement

This place covers:

Continuous processes of extracting sugar from sugar beet with water, with transportation in the form of thin layers, e.g. conveyor belt of 30 m long, 7 m wide and the layer of cossettes being 1 m (maximisation of surface area)

C13B 10/14

using extracting agents other than water, e.g. alcohol or salt solutions

Definition statement

This place covers:

Production of sugar juices using extracting agents other than water, e.g. alcohol, aqueous salt solutions

C13B 15/00

Expressing water from material from which sugar has been extracted (from starch-extracted material [C08B 30/10](#))

Definition statement

This place covers:

Water being extracted from material from which the majority of the sugar has already been extracted, i.e. extraction of the remaining water out from the sugar cane or beet material which contains still some traces of sugar.

C13B 20/00

Purification of sugar juices

Definition statement

This place covers:

Elimination of imperfections of solutions of mainly sucrose, glucose, fructose which are derived from different plants, e.g. beet, cane, etc.

C13B 20/04

followed by saturation

Definition statement

This place covers:

Purification of sugar juices using alkaline earth metal compounds followed by saturation, e.g. addition of $\text{Ca}(\text{OH})_2$ that precipitates as calcium carbonate after addition of CO_2 , which absorbs impurities contained in the sugar juices. and the addition of this alkaline earth metal compound is done until saturation, saturation being the point at which a solution of a substance can dissolve no more of that substance

C13B 20/148

{for fractionating, adsorption or ion exclusion processes combined with elution or desorption of a sugar fraction}

Definition statement

This place covers:

Purification of sugar juices using ion-exchange materials for fractionating, adsorption or ion exclusion processes combined with elution or desorption of a sugar fraction. The desired sugar fraction is adsorbed in the ion exchange material itself and needs to be treated from the ion exchange material, e.g. by elution

C13B 20/165

{using membranes, e.g. osmosis, ultrafiltration (electrodialysis [C13B 20/18](#))}

Definition statement

This place covers:

Purification of sugar juices by physical means using membranes, i.e. filter materials, e.g. nanofiltration, ultrafiltration

References

Limiting references

This place does not cover:

Purification of sugar juices by electrical means, e.g. electrodialysis	C13B 20/18
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C13B 25/00

Evaporators or boiling pans specially adapted for sugar juices; Evaporating or boiling sugar juices

Definition statement

This place covers:

Processes and apparatus for evaporating, dissipating vapour or boiling solutions of sugar, comprising mainly sucrose, glucose, fructose which are derived from different plants, e.g. beet, canes

e.g. boiling pans specially adapted for sugar juices

C13B 30/00

Crystallisation; Crystallising apparatus; Separating crystals from mother liquors; Evaporating or boiling sugar juice}

Definition statement

This place covers:

Crystallisation of sugar, e.g. by using chemicals, in continuous or discontinuous processes; crystallising apparatus for sugar; Separating crystals of sucrose from mother liquors, e.g. by washing in centrifuges; evaporating or boiling sugar juices

C13B 35/00

Extraction of sucrose from molasses

Definition statement

This place covers:

Processes and apparatus of extracting sucrose from molasses, e.g. by precipitation, by osmosis

C13B 40/00

Drying sugar

Definition statement

This place covers:

Processes and apparatus for elimination of water or other undesirable liquids from sugar

C13B 45/00**Cutting machines specially adapted for sugar****Definition statement**

This place covers:

Machines specially adapted to cut sugar, i.e. to penetrate sugar with an edged instrument.

Machines combining cutting, sorting and packing are classified in [C13B 45/02](#)

C13B 50/00**Sugar products, e.g. powdered, lump or liquid sugar; Working-up of sugar
([C13B 40/00](#), [C13B 45/00](#) take precedence; confectionery [A23G 3/00](#))****Definition statement**

This place covers:

Powdered, lump or liquid sugar

Working-up of sugar

Relationships with other classification places

[C13B 50/00](#) concerns sugar end product and the use of this sugar end product is classified for example in [A23G 3/00](#).

References**Limiting references**

This place does not cover:

Processes and apparatus for drying sugar	C13B 40/00
Cutting machines specially adapted for sugar	C13B 45/00
Sweetmeats, Confectionery	A23G 3/00