Technical Vocabulary for American Beet-Sugar Processors

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sugar	*1.* a product of the sugar industry which essentially consists of, or is derived from, sucrose. *2.* (esp. when accompanied by an article) any of the saccharides. When referring specifically to sucrose, it is better to use the term *sucrose.*
nonsugar, nonsaccharide	any water-soluble matter present which is not a saccharide. In formal reporting, the more precise term *nonsaccharide* is preferable.
sucrose	the disaccharide α-D-glucopyranosyl-β-D-fructofuranoside.
nonsucrose	any water-soluble matter present which is not sucrose.
dry substance	the water-soluble, moisture-free matter present.
total solids	the moisture-free matter present.
marc	the water-insoluble constituent of the sugarbeet root.
invert sugar	mixture of glucose and fructose, formed in equal quantities by the hydrolysis of sucrose.
reducing substance	in the sugar industry usually refers to matter, chiefly reducing saccharides, which is able to reduce alkaline-copper reagents such as Fehling's solution.
ash	the solid residue which remains after incineration in the presence of oxygen.
direct polarization	content of sucrose as estimated by simple clarification, if necessary, followed by measurement of the polarization. See note (a). The ambiguous term "sugar content" should be avoided.
sucrose content	percent sucrose as determined by a method designed to minimize interference by nonsucrose, e.g. Clerget, Osborne Zisch, isotope-dilution, gas-liquid chromotography. See note (a).

(a) The analytical method should be made known whenever results are reported. Results expressed in percentage will be assumed to represent mass per 100 mass, unless otherwise designated.

dry-substance content	percent water-soluble, moisture-free matter as determined by drying or other direct means of determining moisture or solids content. See note (a).
rds	percent dry substance by refractometry, using an instrument or table calibrated in terms of percent sucrose by weight in water solution.
Brix	percent dry substance by hydrometry, using an instrument (Brix hydrometer) or table calibrated in terms of percent sucrose by weight in water solution.
polarization	the amount of rotation given by a substance to the plane of plane-polarized light under standard conditions (ICUMSA), expressed as equivalent percent sucrose. The verb "polarize" in this context should be replaced by "measure the polarization."
total-sugars content	content of saccharides as defined by the method(s) of analysis used and the basis for reporting; e.g. "total sugars by acid hydrolysis and Lane-Eynon titration, as % invert." See note (a).
nonsugar content, nonsaccharide content	the content of water-soluble matter other than saccharides. See note (a).
nonsucrose content	the content of water-soluble matter other than sucrose. See note (a).
reducing-substance content	the result of an analytical method for reducing saccharides, usually expressed as equivalent percent invert sugar. See note (a).
invert-sugar content	content of an equal-part mixture of glucose and fructose. See note (a). If it is established that invert sugar is the only reducing substance significantly present, then the results of an analysis for reducing substance may be reported as "% invert sugar"; however, the term "reducing substance as % invert sugar" should be used in the case of unknown mixtures.

(a) The analytical method should be made known whenever results are reported. Results expressed in percentage will be assumed to represent mass per 100 mass, unless otherwise designated.

apc	apparent purity coefficient, i.e. 100 x direct polarization/rds or 100 x direct polarization/Brix. See note (a).
purity	100 x sucrose/dry substance. See note (a). The term "true purity" should be phased out.
marc content	content of water-soluble sugarbeet matter. See note (a).
ash content	see *ash*. See note (a).
extraction	net sucrose produced/sucrose entered. *Percent extraction* = 100 x extraction.
elimination	the fraction of the nonsucrose that is separated from the main-product stream in a given phase of the process; thus "diffuser elimination," "carbonation elimination." *Percent elimination* = elimination x 100.
accounted losses	quantities of sucrose determined or estimated by measurements and analyses to be escaping the process through known channels of loss. The term "known losses" should be phased out.
unaccounted loss	deficit in the sucrose balance of the process after the production and accounted losses are subtracted from the quantity of sucrose entered. The terms "unknown loss(es)" and "undetermined loss(es)" should be phased out.
sugar factory	a processing facility which extracts and refines sugar from sugarbeets or sugar cane.
sugar mill	a processing facility which extracts sugar from sugarbeets or sugar cane to produce raw sugar or partially refined syrup.
sugar refinery	a processing facility which produces refined sugar from raw sugar or syrup.
raw sugar	*1.* partially refined sugar; *2.* in a beet-sugar factory, the crystalline product of the raw boiling (q.v.).

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processed seed	beet seed of uniform size, prepared by mechanical treatment and screening. Usually also treated with a fungicide.
pelleted seed	beet seed brought to uniform size by coating.
Beet (pl: beets)	sugarbeet root.
beet rasp,	
rotten beets	beets that have been degraded by fungal or bacterial spoilage.
bolters	beets that have grown a flower or seed stalk.
frozen beets	beets in which at least a portion of the cellular juice has been frozen.
dehydrated beets	beets that are at least partly dessicated. The term "wilted beets" should be phased out since, technically speaking, wilting is characteristic of leaves rather than roots.
sound beets	beets that are essentially in good condition.
fanged beets	beets with multiple tap roots. A more descriptive term than "sprangled beets."
petiole	beet-leaf stalk.
crown	*n.* the part of the beet to which the petioles are attached; *v.* to remove the crown from a beet.
tops	beet leaves and petioles, which may or may not be accompanied by crowns or pieces of crown.
tail	the lower, slender part of the beet root.

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campaign	the period in which the beets are processed. May also include factory test-out and lay-by periods, periods in which the beets are harvested but not processed, and periods in which stored juice, partially refined sugar, molasses, or other substances are processed or reprocessed.
receiving station	the station at which the growers' beets are weighed, unloaded, usually dry cleaned, and sampled.

beet screen	mechanical device for cleaning the beets at the receiving station; usually a specially designed roller table.
screened dirt, screenings	the earth, tops, weeds, and other matter separated from the beets by the beet screen.
first-net weight, screened weight	the weight of beets in a delivery after removal of the screened dirt or screenings.
tare laboratory	the station at which the beet samples taken at the receiving station are analyzed. The analytical results of the tare laboratory are used in determining the payments for the delivered beets.
percent tare	the unwanted matter in the first-net or screened beets, i.e. leaves, crown portions, earth, and other foreign matter, expressed as a percentage of the first-net or screened weight.
percent clean beets	100 minus percent tare.
clean-beets weight	purchase weight of the delivered beets, i.e., first-net or screened weight adjusted for percent tare or percent clean beets.
beet rasp, beet saw	device designed to obtain representative samples of beet roots in the form of fine particles.
brei	fine beet particles — the product of a beet rasp, beet saw, or similar device.

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beet pile	stack of beets usually destined for long-term storage, i.e. more than a day or two. The term "silo," which implies a storage facility designed to promote fermentation, should be avoided.
beet bins	A-frame structures built over beet flumes for the short-term storage of beets at the factory site.
beet slab	paved area, usually with embedded beet flumes, for the short-term storage of beets at the factory site.
wet hopper	rectangular hopper constructed over a section of beet flume, for the transport of

	beets to the factory process immediately upon their unloading from a railroad car, truck, or other carrier.
monitor	in handling beets, a swiveling hydraulic nozzle used to flush the stored beets into the flumes of a beet slab. The less-generic term "Elfa nozzle" should be avoided.
beet end	section of the factory encompassing the process from the beet flumes through the juice purification. May also include the evaporators, especially in older factories not originally designed for the extensive use of evaporator vapors in heating the vacuum pans.
beet flume	concrete-lined ditch or metal trough designed for the hydraulic transport of beets.
flume	*v.* to transport beets by means of a beet flume.
flume water	water used to transport beets in a beet flume.
flume effluent	water withdrawn or discarded from the beet-flume system to maintain water levels or to control the solids content of the flume water.
flume makeup	water supplied to the beet-flume system to replace the flume effluent.
beet feeder	apparatus which regulates the flow of beets in a beet flume; usually a variable-speed, rimless wheel whose spokes project downward into the flume.
trash catcher	apparatus that removes beet tops and weeds from the beet flume; usually a mechanism of traveling, self-cleaning rakes or combs.
trash screen	apparatus that removes the coarser suspended solids (mostly vegetable matter) from the flume water or flume effluent; often a vibrating screen.
tailings separator	apparatus that recovers beet tails and pieces from the separated beet tops, weeds, and other unwanted matter; usually utilizes the differential flotation or

	bouncing property of the beet-root matter.
rock catcher	apparatus that removes stones and other dense matter from the beet flume, usually by differential flotation.
rock wheel	bucket wheel that elevates the stones and other matter separated by the rock catcher.
beet wheel	bucket wheel that elevates the beets and, in some cases, water from the beet flume.
beet pump	specially designed pump for elevating beets and flume water.
bar screen	self-defining. A more descriptive term than "grizzly." Often used for separating beets from flume water.
trash rolls	specially designed roller table, often similar to a beet screen (q.v.), for separating beets from flume water and simultaneously separating beet tops and weeds from the beets.
beet washer	apparatus for wet cleaning of the beets.
picking table	roller table or broad belt conveyor designed to spread out the flow of beets for the manual removal of foreign objects.
clarifier	apparatus for the elimination by sedimentation of suspended solids from a turbid liquid; thus *flume-water clarifier, main-waste clarifier, first-carbonation clarifier.* Note: When the main objective is to recover the solid phase, the term *thickener* is preferred; thus *hot-saccharate thickener* (q.v.).
mud pond	basin for the storage and dewatering (usually by evaporation and percolation) of the slurry of solids separated by a flume-effluent or main-waste clarifier.
settling basin	basin or pond for the elimination by sedimentation, and also the storage of suspended solids from flume effluent or main waste.
waste-water pond	basin for the storage, treatment by biochemical action, or disposal by evaporation-percolation of waste water.

main waste	the principal liquid-waste effluent from the factory. The term "main sewer" should be phased out.

slicer	apparatus which cuts the beets into slender strips.
cossettes	slender strips of beets cut by the slicers.
beet knife	rectangular piece of steel rolled or milled into a serrated shape for slicing beets into cossettes.
knife blocks	steel frames for supporting the beet knives in the slicers.
guide bars	removable steel bars attached to a knife block just ahead of the cutting edges of the beet knives.
rocker bars	guide bars whose angle with respect to the knife block is adjustable.
side bars	removable wear bars attached to the curved sides of certain types of knife blocks.
diffusion	phase of the process in which sugar-bearing juice is obtained from the cossettes by a combination of leaching and cell-membrane dialysis.
diffuser	apparatus for obtaining sugar-bearing juice from the cossettes by a combination of leaching and cell-membrane dialysis.
denaturation	alteration of the beet-cell protoplasm, usually through the effect of temperature, with the result that the cell-wall permeability and the coagulation of the cell-protein matter are increased. The term "plasmolysis" should not be used here.
scalding	preheating of the cossettes before diffusion by mixing them with hot raw juice.
scalder	apparatus in which scalding is achieved.
raw juice	sugar-bearing juice obtained from the beets in the diffuser. The term "diffusion juice" is not sufficiently more descriptive to offset its greater length.
pressed juice	cellular juice obtained from beets by pressing.

press water	liquid effluent from the pulp presses.
pulp	cossettes that have been exhausted by diffusion.
wet pulp	pulp leaving the diffuser.
pressed pulp	pulp leaving the pulp presses.
sand catcher	apparatus which separates sand and earth from a liquid stream, such as raw juice, press water, or flume water.
draft	100 x weight of raw juice produced / weight of cossettes introduces into the diffuser.
diffusion loss	sucrose leaving the process in the pressed pulp, when the press water is being returned to the diffuser; otherwise, sucrose leaving the process in the wet pulp. Usually expressed as percent on beets or percent on sucrose entered.

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preliming	treatment of the raw juice with relatively small amounts of lime, e.g. 0.2 - 0.3% CaO, over a period of about 20 minutes, to precipitate proteinaceous matter in a relatively stable form, such that its repeptization is minimal in subsequent main liming and carbonation, or defeco-carbonation.
main liming	treatment of the juice with relatively large amounts of lime, e.g. 1% CaO or more, to precipitate certain nonsucrose and to promote the decomposition reactions between lime and certain nonsucrose. This term is much preferable to "defecation."
carbonation	phase of the process in which a gas that is rich in CO_2 is added to the limed juice to precipitate excess lime as $CaCO_3$. Thus, *first carbonation, second carbonation.* The colloquial abbreviations *first carb., second carb.* are useful in the interest of brevity.
defeco-carbonation	simultaneous liming and carbonation.
carbonate	*v.* to introduce a gas rich in CO_2 into the juice.

carbonator	*1.* apparatus in which carbonation is accomplished. Preferable to "carbonation tank." *2.* person operating such apparatus.
sulfitation	addition of SO_2 to the juice. The terms "sulfuring" and "third saturation" should be phased out.
first-carbonation slurry	product of the first carbonation, consisting of precipitated nonsucrose and $CaCO_3$ suspended in purified juice.
first-carbonation clarifier	apparatus for the separation by sedimentation of the suspended matter from the first-carbonation slurry. Preferable to the term "thickener" in this instance because the primary objective here is to clarify the purified juice. The nondescriptive term "Dorr," concise as it may be, should be phased out.
clarifier overflow	supernatant liquid leaving the clarifier.
clarifier underflow	concentrated suspension of separated solids leaving the clarifier.
carbonation-filter feed	feed slurry for the (usually) vacuum filters that desweeten the precipitates from the carbonation. Often also embodies cakes from other filtering stages which require desweetening.
desweeten	*v.* to reduce the sucrose content of a filter cake, resin bed, carbon bed, etc. to a practical minimum by displacing the sucrose-bearing liquid phase with water. The term "sweeten off" should be phased out.
lime cake	filter cake from the filters that desweeten the carbonation-filter feed.
sweetwater	liquid effluent from the filters that desweeten the carbonation-filter feed, consisting of the displaced juice and some of the wash water.
waste-lime slurry, lime waste	mixture of lime cake and water added to liquefy it for pumping. The nondescriptive terms "lime flume" and "lime sewer" should be phased out.
lime pond	basin for the storage and dewatering of the waste-lime slurry.

waste lime	solid matter remaining after the waste-lime slurry is dewatered.
waste-lime loss	sucrose leaving the process via the waste-lime slurry, usually expressed as percent on beets or percent on sucrose entered. The terms "lime-flume loss" and "lime-sewer loss" should be phased out.
lime-salts content	content of dissolved calcium salts, expressed as percent CaO on dry substance. See note (a).
alkalinity	in the product streams of a beet-sugar factory, the result of a titration with standardized acid solution to a phenolphthalein endpoint or equivalent pH, expressed as g CaO per 100 ml. In water analysis the endpoint must be specified and the result is usually expressed as ppm or gpg $CaCO_3$. See note (a).
thin juice	purified juice before evaporation.

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evaporator body	single evaporator vessel.
evaporator station	aggregate of the various evaporator bodies and their auxiliary equipment.
evaporator effect	evaporator body or group of bodies working as one of the series-connected units in a multiple-effect evaporator.
multiple-effect evaporator	series of evaporator effects operating at successively reduced vapor pressure, and so connected that the first effect is heated by steam, the second by vapor generated by the first effect, and so on.
vapor	steam derived from boiling juice or syrup, as differentiated from steam originating in the boiler house.
calandria	heating element used in certain types of evaporator bodies and vacuum pans, consisting of a drum- or lens-shaped body traversed by vertical tubes with the steam or heating vapor in the space surrounding the tubes.
center well	communicating tube of relatively large

	diameter traversing the axis of a calandria which permits a convective circulation of the liquid being heated, i.e. upward through the tubes and downward through the center well.
condensate	water obtained by condensation of steam or vapor in surface condensors, or in the steam or vapor chests of heating or evaporating vessels.
condenser	apparatus for the condensation of steam or vapor, generally using water as the cooling medium.
condenser water	mixture of condensate and cooling water produced by a direct-contact condenser.
barometric leg	column of pipe beneath a condenser operating at less-than-atmospheric pressure, permitting the removal of condensate or condenser water by gravity. Preferable to "leg line."
thick juice	concentrated, purified juice — the sugar-bearing product of the juice evaporator station.
concentrator	evaporator body for precisely adjusting the concentration of thick juice or standard liquor (q.v.) destined for long-term storage, or of CSF (q.v.); or for preparing graining charges (q.v.).

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sugar end	the section of the factory that includes the processes for separating the final sugar product from the purified juice by crystallization and recrystallization. May include the evaporator station(s), especially in factories which make extensive use of vapors for heating the vacuum pans.
syrup	general term for sugar solutions of relatively high concentration.
sugar boiling	transformation of syrup into a mixture of crystals and mother liquor (see *massecuite*), by simultaneous evaporation and crystallization.

boiling scheme	the overall plan of crystallization-separation stages in the sugar end, chiefly designated by the number of stages or "boilings" used; e.g. *three-boiling scheme, four-boiling scheme.*
white boiling	the crystallization-separation scheme that operates at the highest purity, using chiefly standard liquor (q.v.) as its feed and yielding a crystalline product that becomes marketable sugar upon washing, drying, and (usually) screening.
intermediate boiling	the middle-purity stage of the crystallization-separation process. It uses as feed the separated mother liquor from the white boiling, sometimes mixed with thick juice. Its non-marketable crystalline product is redissolved for recrystallization in the white boiling. In a four-boiling scheme there would be two intermediate boilings, designated as *first intermediate* and *second intermediate.* The term "high raw" should be phased out.
raw boiling	the final, lowest-purity stage of crystallization-separation. It uses as feed the mother liquor separated from the last intermediate boiling and yields a non-marketable crystalline product that is redissolved for recrystallization in the white or intermediate boiling. The term "low raw" should be phased out.
magma	mixture of crystals and syrup.
affination magma	magma produced by mechanically mixing crystals with syrup (see *affination*).
massecuite	magma produced by crystallization — a suspension of crystals in their mother liquor. The more descriptive nature of this term justifies its preference to the slightly more concise "fillmass."
vacuum pan	in the sugar end, a low-pressure evaporator body designed especially for sugar boiling.
boiling time	in batch sugar boiling, the elapsed time from the admission to the cutoff of the heating steam or vapor.

cycle time	in batch sugar boiling, the elapsed time from the admission of one graining charge to the admission of the succeeding graining charge.
graining charge	in batch sugar boiling, the batch or charge of syrup drawn into the vacuum pan at the beginning of the batch cycle.
grain	*n.* aggregate of the crystals in a massecuite; *v.* to introduce or initiate a crop of crystal nuclei in a graining charge.
seeding	supplying crystal nuclei to the graining charge, after the latter has been concentrated to the mestastable zone (q.v.) of supersaturation, in numbers equal to the desired crystal population of the finished massecuite.
milled seed	finely ground sugar crystals used for seeding, usually produced by wet grinding in isopropanol.
seed slurry	liquid suspension of finely divided sugar used for seeding — usually milled seed in its isopropanol suspension. Affectionately dubbed *moose milk* by many in the industry.
growing the grain	phase of batch sugar boiling following graining, in which the crystals are grown to the desired size and the volume of the massecuite increased by simultaneously adding syrup and evaporating water.
tightening the strike	final phase of batch sugar boiling in which the syrup feed is stopped and evaporation continued to further exhaust the mother liquor of sucrose and to adjust the massecuite to the desired final density.
strike	batch of finished massecuite from a batch sugar-boiling process.
dropping the strike	discharging the batch of finished massecuite from the vacuum pan.
supersaturation	quotient of the sucrose/water ratio in the given solution divided by the sucrose/water ratio of a solution that is saturated with sucrose under the same conditions of temperature and nonsucrose/water ratio.

metastable zone	region of supersaturation in which crystals already present will grow but new-crystal formation (nucleation) will not readily occur.
labile zone	region of supersaturation in which nucleation will readily occur.
catch-all	device for separating entrained matter from the vapor leaving a vacuum pan or evaporator body.
mixer	surge vessel for receiving massecuite batchwise from a vacuum pan and discharging it more or less continuously to a centrifugal station or continuous crystallizer.
crystallizer	apparatus for continuing the crystallization of sugar in a massecuite after its discharge from a vacuum pan, by providing retention time, stirring, and cooling at a controlled rate.
curing	the crystallization of sugar in a massecuite by means of a crystallizer.
mingler	apparatus for receiving the massecuite discharged from a crystallizer, adjusting or controlling its temperature, and distributing it among a set of centrifugals — usually a trough or tube equipped with a rotating coil of pipe through which water at a controlled temperature is circulated (*Stevens coil*).
centrifugal	in the sugar end, an apparatus which separates the crystals from the syrup in a magma by filtration through a screen, enhanced by centrifugal force. Preferable to the less-descriptive term "machine."
spin	*v.* to treat a magma in a centrifugal. Sufficiently descriptive to be preferred to the less concise term "centrifuge."
purge	*v.* to remove the (bulk of the) syrup from the crystals of a magma.
green syrup	the filtrate leaving a centrifugal before initiation of the wash, consisting of mother liquor and whatever fine crystals pass the screen. The term "run-off" should be phased out.

wash syrup	the filtrate leaving a centrifugal after the initiation of the wash, consisting of displaced green syrup plus the solution of sugar crystals dissolved by the wash.
machine syrup	the total liquid product of a centrifugal when the green and wash syrups are allowed to commingle.
high green syrup, high wash syrup, high machine syrup	the respective liquid products of the centrifugals in the white boiling (*white centrifugals*).
intermediate green syrup, etc.	the respective liquid products of the centrifugals in the intermediate boiling (*intermediate centrifugals*).
low wash syrup	wash syrup from the centrifugals in the raw-boiling stage (*raw centrifugals*)
molasses	green or machine syrup from the raw centrifugals — the sugar-bearing product of the sugar end whose purity has been reduced to the point that further crystallization of sugar is uneconomical.
melter	apparatus for dissolving crystalline sugar in juice, syrup, or water.
high melter	melter for redissolving sugar produced by the intermediate boiling (*intermediate sugar*). Also used for redissolving sugar products which require re-refining.
low melter	melter for redissolving sugar produced by the raw boiling (*raw sugar*).
remelt	*v.* to redissolve crystallized sugar for the purpose of recrystallizing it; *adj.* characterizes collectively the intermediate and raw boilings, their equipment, and their products, e.g. *remelt boilings, remelt centrifugals, remelt sugar.*
remelt syrup	syrup made by redissolving crystallized sugar — the product of a melter.
standard liquor	the principal feed for the white boiling (q.v.). In a conventional three-boiling scheme it consists of thick juice plus remelt syrup. In a conventional four-boiling scheme it consists of remelt syrup containing only water as the solvent.

conglomerate	cluster of mutually intergrown crystals. The terms "ball grain" and "popcorn" should be phased out.
agglomerate	*v.* to intergrow mutually so as to form a conglomerate.
twin	pair of mutually intergrown crystals.
false grain	undesirably small crystals found among the crystal population of a massecuite — the result of unwanted spontaneous nucleation during the sugar-boiling operation.
smear	*v.* to produce false grain in a massecuite to the extent that it becomes difficult to purge; *n.* the mixed-grain condition resulting from smearing.
percent crystallization	the weight of crystalline sucrose formed in a massecuite expressed as a percentage of the total weight of sucrose, both crystallized and dissolved, in the massecuite.
net crystallization	the total weight of sucrose in the solid product of the centrifugals, including the dissolved sucrose in any syrup adhering to the crystals, expressed as a percentage of the total weight of sucrose, both crystallized and dissolved, in the massecuite spun.
affination	process for purifying an impure crystalline sugar by mixing it with syrup to form a magma, then spinning the magma with or without washing.
sugar drier	apparatus for drying the damp-sugar product of the white centrifugals. Preferable to the less-descriptive term "granulator."

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granulated sugar	crystalline sugar of market quality. May be characterized by such modifiers as *fine, extra fine, manufacturers, bakers,* relating to the average crystal size and size distribution.
powdered sugar	finely divided sugar produced by pulverizing granulated sugar, usually containing an anti-caking additive. Should be preferred to "confectioners sugar."

brown sugar	marketable product consisting of fine sugar crystals lightly coated with a yellow- or brown-colored syrup that contains a relatively high percentage of invert sugar, which keeps the product slightly moist.
soft sugar	term preferred by the cane-sugar industry to *brown sugar*.
liquid sugar	marketable syrup, usually prepared by dissolving granulated sugar in water. May consist of a mixture of dissolved sucrose and invert sugar — the latter usually being produced by hydrolysis of some of the dissolved sucrose.
sucrose sugar, liquid sucrose	liquid sugar containing essentially only dissolved sucrose.
invert sugar	liquid sugar containing a significant proportion of invert sugar; usually characterized by the invert-sugar content expressed as a percentage of the dry-substance content, e.g. "40% invert syrup."
bottlers sugar	sugar meeting the standards of the National Soft Drink Association. Can be either granulated or liquid sugar.
bulk bin	apparatus for storing granulated sugar in bulk form. The term "silo," which implies a storage facility designed to promote fermentation, should be phased out.

Steffen process	process for the extraction of sucrose from molasses by combination with CaO and $Ca(OH)_2$. This term should be retained as a memorial to the inventors, Steffen *pere et fils*, in preference to the terms "saccharate process" and "calcium saccharate process." "Steffens" and "Steffens process" are incorrect.
Steffen house	section of the factory that encompasses the Steffen process.
Steffen factory	a factory that incorporates a version of the Steffen process. Conversely, *non-Steffen factory*.

batch cooler the classical reactor in the Steffen process, consisting of a vertical, cylindrical vessel equipped with a calandria heat exchanger (for cooling) and a propeller stirrer.

lime-sucrose chemical compound of Ca or CaO with sucrose; thus *monolime-sucrose, dilime-sucrose, trilime-sucrose.*

saccharate precipitate formed in the Steffen process, consisting of lime-sucrose, lime, and some nonsucrose from the molasses; characterized as *cold saccharate* or *hot saccharate* depending upon the stage of the Steffen process in which it originates.

saccharate cake filter cake from the washing filters in the Steffen process, consisting of saccharate, some adhering filtrate, and moisture.

saccharate milk slurry of saccharate cake in sweetwater (q.v.), used for preliming, main liming, or defeco-carbonation in Steffen factories.

cold filtrate liquid effluent from the filters that separate the cold saccharate (*cold-saccharate filters*). The term "cold waste" should be phased out.

cold wash liquid effluent from the washing section of a cold-saccharate filter, if separated from the balance of the filtrate.

saccharate thickener apparatus for separating the hot saccharate from the bulk of its mother liquor by sedimentation. Preferable to "clarifier" in this instance because the solid matter is the most-desired product. The non-descriptive term "Dorr" should be phased out.

hot filtrate liquid effluent from the filters, if any, that separate the hot saccharate per se. The term "hot waste" should be phased out.

Steffen filtrate liquid effluent from the Steffen process, consisting of the decantate (*overflow*) from the saccharate thickener plus the hot filtrate, if any. If the hot-saccharate

stage is not used, the cold filtrate becomes the Steffen filtrate. The terms "final waste" and "Steffen waste" should be phased out.

CSF — concentrated Steffen filtrate — a syrup-like liquid produced by deliming the Steffen filtrate and then concentrating it to about 60% dry substance. Valuable as an animal feed or feed additive.

saccharate purity — purity of the syrup that remains after the saccharate cake is delimed.

perfect-wash purity — purity of the syrup that remains after deliming a sample of saccharate cake that has been given an extra washing in the laboratory. Purpose of making this determination is to evaluate the effectiveness of the washing on the factory filters.

Steffen loss — sucrose leaving the process in the Steffen filtrate; usually expressed as a percentage of the sucrose in the molasses worked, of the weight of beets sliced, or of the total sucrose entering the factory.