

JIS

JAPANESE INDUSTRIAL STANDARD

Glossary of Terms Used in Pulps and Papers Industry

JIS P 0001—1979

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In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

JAPANESE INDUSTRIAL STANDARD

J I S

Glossary of Terms Used in
Pulps and Papers IndustryP 0001-1979
(Reaffirmed: 1985)1. Scope

This Japanese Industrial Standard specifies main terms used in pulps and paper industry.

Remark: In this Standard the units and numerical values shown in { } are in accordance with the International System of Units (SI) and are appended for informative reference.

2. Classification

The terms used in pulps and paper industry shall be classified into the following 7 classes.

Further, the arrangement in terms in each class is in the order of the Japanese syllabary.

- (1) Pulp general terms
- (2) Pulp manufacture
- (3) Pulp type
- (4) General terms for papers and paperboards
- (5) Paper manufacture
- (6) Paper and paperboard types and converted products
- (7) Quality and tests for pulps, papers and paperboards

3. Numbers, Terms, Readings and Meanings

The numbers, terms, readings and meanings shall be as follows.

Further, the corresponding English is shown for informative reference.

Applicable Standards: See pages 114 to 117.

3.1 Pulp General Terms

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
1001	アルカリ法パルプ	ARUKARI HŌ PARUPU	The pulp manufactured according to alkaline method. Usually there are kraft pulp, soda pulp, etc.	alkaline pulp	
1002	易漂白パルプ	I HYŌHAKU PARUPU	The chemical pulp removed of lignin sufficiently by advancing cooking comparatively and easy-bleachable. The term relative to difficult-bleachable pulp. See JIS P 2101	easy-bleachable pulp	
1003	仮道管	KA DŌKAN	The element consisting of the main part of soft wood timber which allows the liquid to pass through and simultaneously support the timber body. In common speech it means fibers of soft wood. In some hardwoods, the element exists.	tracheid	
1004	完全荷口	KANZEN NIGUCHI	In the case of pulp, the lot of which error on specified mass is within $\pm 10\%$ and appearance is normal.	lot of normal bales	
1005	結束繊維	KESSOKU SENI	Bundle of fibers not disaggregated in pulp. If this is mixed in, it becomes defects of the paper.	shives	
1006	高収率パルプ	KŌ SHŪRITSU PARUPU	The generic term of pulps (GP, RGP, TMP, CGP, SCP, etc.) manufactured at higher yield than that of usual chemical pulp. It means, in some cases, the chemical pulp intended for improvement of cooking yield rate by improving the conventional chemical pulp method or by developing a new system.	high yield pulp	

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
1007	こ ヲ	KORI	Package in which pulp, papers, etc. are bound by pressing with a packing machine. It is also called package in some cases.	bale	
1008	さらしハルプ	SARASHI PARUPU	Bleached pulp by using bleaching agent.	bleached pulp	
1009	じん皮繊維	JINPI SENI	Fibers taken mainly from endodermis of dicotyledon. Fibers of paper mulberry, drysantha, GAN PI, flax, hemp etc. belong to these and are used mainly as base materials of Japanese paper.	bast fiber	
1010	セルロースファイバール	SERURŌSU HIBURIRU	Yarn like compounds of cell walls appeared by mechanical or chemical treatment of cellulose fibers.	cellulose fibrils	
1011	道 管	DŌKAN	Compounding element specific to hardwood timber to act to pass the liquid. The shape, size and compounding ratio in the timber are different according to the kind of wood. If these are contained in paper in large amount, these become defects of the paper. Individual cells are called strictly vessel elements.	vessel	
1012	ハルプ	PARUPU	Aggregates of cellulose fibers extracted from timber or other vegetables according to mechanical or chemical treatment. These are classified into mechanical pulp, chemical pulp, etc. by manufacturing method and into paper making pulp, dissolving pulp, etc. by use.	pulp	

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
1013	水分	HYŌ SUIBUN	Moisture content of packaged pulp. The numerical value of average for each lot is expressed by percentage corresponding to base pulp of mass. See JIS P 8101	average moisture of pulp bales	
1014	風乾パルプ	FŪKAN PARUPU	The pulp in which the moisture content is balanced with the atmospheric humidity. In commercial custom the pulp is traded by converting to moisture content of 10 %.	air-dried pulp	
1015	未ざらしパルプ	MIZARASHI PARUPU	Paper-making pulp not treated with bleaching treatment.	unbleached pulp	
1016	木材パルプ	MOKUZAI PARUPU	The pulp in which the wood is used as the base material. These pulps are classified into mechanical pulp, chemical pulp, etc. according to the manufacturing method and into paper-making pulp, dissolving pulp, etc. according to use.	woodpulp	
1017	木部繊維	MOKUBU SENI	The term to be used for all slender cells other than vessels, and soft textures out of cells composing the wood. The term corresponding to the bast fiber. The tracheids in soft wood, the true wood fibers and fibrous tracheids in hardwood belong to this.	wood fiber	
1018	ラップパルプ	RAPPU PARUPU	The pulp formed by wet machine and lapped with folding.	lap pulp	

3.2 Pulp Manufacture

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
2001	アスプルンド法	ASUPURUNDO HŌ	Machine pulp manufacture method for pulping with a special disaggregation machine which heating wood chips with steam at 160 to 180°C. It is mainly used for manufacturing the pulp for fiber boards and applied with attaching chemical treatment device to manufacturing chemigroundwood pulp, semichemical pulp or waste paper treatment.	Asplund process	
2002	亜硫酸パルプ排液	ARYŪSAN PARUPU HAIEKI	Deep brown liquid containing the compound eluted when the fiber base material is cooked with sulfurous acid. The main component is lignosulphonate and it contains other than that, sugars, organic acids, inorganic acids, etc. The waste liquids are utilized as base material for caking, dispersant, tanning agent, synthetic resin, vanillin, yeast, alcohol, etc.	sulphite (pulp) waste liquor, sulfite (pulp) waste liquor	

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No.	Term (Japanese character)	Reading	Definition	Reference English equivalent
2003	亜硫酸法	ARYŪSAN HŌ	The chemical pulp manufacturing method for cooking by acid sulphite solution. This process is divided mainly into acid sulphite process and bisulphite process. For acid sulphite process, cooking liquid containing free sulphurous acid more than hydrogensulphite shall be used. For this base, sodium, calcium, magnesium, etc. are used. The base material vegetables containing phenol component, water-soluble component in large amount is not suitable. Lignin is eluted by sulphonizing, and the waste water contains lignosulphonic acid, sugars, etc. The bisulphite process is the method to make hydrogensulphite solution cooking liquid, and for base, sodium and magnesium are used in many cases. Because during cooking pH does not become 4 or under, the elution of hemicellulose is restricted and the pulp yield is high.	sulphite process, sulfite process
2004	アルカリ処理	ARUKARI SHORI	The treatment to extract soluble matters by adding sodium hydroxide solution to pulp at a stage of multistage bleaching to heat. (1) In the case of pulp for paper making, it is carried out for making bleaching easy by mainly eluting lignin. (2) In the case of pulp for dissolution, it is carried out for making content of α-cellulose higher furthermore.	alkali treatment, alkali extraction

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
2005	アルカリ冷精製	ARUKARI REISEI SEI	To make the content of α-cellulose by dissolving hemicellulose to remove by treating the pulp with sodium hydroxide solution at ordinary temperature.	cold alkali refining	
2006	アルカリ法	ARUKARI HŌ	Chemical pulp manufacturing method to cook fiber base materials such as timber, straw, bamboo, bast fiber, etc. with alkaline chemical agent. Usually, it means the kraft process and soda process but in broad definition, the alkaline semichemical process, cold soda process, etc. are contained.	alkaline process	
2007	ウェットマシン	UETTO MASHIN	A machine for formation of wet pulp. The sheet formed by cylinder mould is wound around a large diameter roll to make lap pulp of about 70 % in moisture content.	wet machine	
2008	液比	EKI HI	The ratio of cooking liquid mass (including moisture content of chips) relative to absolute dry mass of chips. The liquor to wood ratio of KP is usually 3 to 4. The liquor to wood ratio should preferably be large in considering the uniformity of pulp quality, but be small in considering the heat source for cooking, cooking speed, concentration of yield solid content.	liquor to wood ratio, liquor ratio	

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
2009	塩素処理	ENSO SHORI	Treatment for chlorination of fiber base material and non-bleached pulp. In the alkaline treatment of following stage, it is carried out for making lignin soluble. It is applied to bleaching of pulp.	chlorination	
2010	回収ボイラー	KAISHŪ BOIRĀ	The boiler to recover reusable chemicals by concentrating and burning the waste liquid generated at manufacturing kraft pulp or the like. In this case, the burning heat is also utilized.	recovery boiler	
2011	化合酸	KAGŌSAN	Sulphurous acid connected with base in sulphurous acid cooking liquid. Actually its amount is 1/2 of SO ₂ in hydrogensulphite. See 2003 Sulphite Process	combined acid	
2012	過酸化物質漂白	KASANKABUTSU HYŌHAKU	The bleaching process utilizing peroxide (hydrogen peroxide, sodium peroxide, etc.). The process is used for bleaching of all pulps, particularly of machine pulp. In that case, damage of cellulose is less. To this bleaching liquid, chemicals to prevent decomposition due pH adjustment, and heavy metal are compounded.	peroxide bleaching	
2013	ガス洗浄機	GASU SENJŌKI	The apparatus to be used for cleaning of waste gas, sulphurous gas or chlorine gas, etc. of the recovery boiler. There are tower type to carry out cleaning of gas by counter current style and Venturi type to carry out cleaning of gas by spraying water or the like with providing throttling part in gas passage.	scrubber	

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
2014	かせい化装置	KASEIKA SŌCHI	The equipment to convert sodium carbonate solution to sodium hydroxide by treating with milk of lime. It is used for recovery of chemical liquid in kraft process, soda process, etc.	causticizing plant	
2015	かせい化率	KASEIKA RITSU	The rate of sodium carbonate to be converted to sodium hydroxide when making sodium hydroxide by causticizing sodium carbonate solution by using milk of lime. $\frac{\text{NaOH}}{\text{NaOH} + \text{Na}_2\text{CO}_3} \times 100 (\%)$ It is expressed by converting to Na_2O or NaOH . It is important for object of control when causticizing the green liquor in kraft process and soda process.	causticizing efficiency, causticity	
2016	活性アルカリ	KASSEI ARUKARI	One of expression methods of alkalinity of cooking liquid of kraft process and soda process. Active alkali = $\text{NaOH} + \text{Na}_2\text{S}$ It is expressed by converting to Na_2O or NaOH .	active alkali	
2017	間接蒸解法	KANSETSU JŌKAI HŌ	The process for indirect cooking by taking out the chemical liquid from digester to circulate with heating through heat exchanger in the case of pulp manufacturing.	indirect cooking process	

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No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
2018	気相蒸解	KISŌ JŌKAI	The process for carrying out cooking in vapor phase according to means of steam blowing-in after separating excess liquid with permeating the cooking liquid into chips.	vapor phase cooking	
2019	クラフトターペンチン	KURAFUTO TĀPEN-CHIN	The distilled turpentine of that contained in soft wood chips together with the recovery gas at cooking by kraft process. It is used for solvent, flotation oil, etc.	sulphate turpentine, sulfate turpentine	
2020	クラフト法	KURAFUTO HŌ	The chemical pulp manufacturing process for cooking fiber base materials of timber and others by chemical liquid having main components of sodium hydroxide and sodium sulphide. For supplementing sodium content sodium sulphate shall be used. This is reduced to become sodium sulphide at recovery process. The cooking temperature is high in comparison with sulphite process and its time is short. Recently, continuous cooking is carried out in many cases.	kraft process, sulphate process, sulfate process	
2021	黒液	KOKUEKI	The waste liquid of alkaline-process pulp such as kraft pulp. It is black in colour and includes inorganic matters included in cooking liquid and organic matters such as lignin eluted from vegetables. It is used mainly for making cooking liquid by recovering.	black liquor	

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
2022	古(故)紙	KOSHI	Generic term of used paper and paperboard or paper, cutting scraps of paperboard, etc. It is used as paperboard base material as it is in many cases, but it also used as base material for printing paper, writing paper, etc. with deinking.	waste paper	
2023	コニカルリフアイナー	KONIKARU RIFAINĀ	A refiner of which rotary body of circular cone shape attached with blades in parallel to axial direction is inserted in outer shell. It is used mainly for beating and fine crushing of pulp.	conical refiner	
2024	碎木機	SAIBOKU KI	A machine to manufacture groundwood pulp. It crushes timber by grinding and pressing it while spraying water to rotating grindstone surface. There are pocket grinder, caterpillar (chain) grinder, etc.	grinder	
2025	砕木と(砥)石	SAIBOKU TOISHI	A grind wheel of grinder. There are those made of natural stone and of artificial stone. The natural stone is sandstone and for artificial stone there are cement artificial stone and burned stone of alundum, carborundum, etc.	grindstone, pulpstone	
2026	サルファイトターペンチン	SARUFAITO TĀPEN-CHIN	Turpentine in a timber changes in quality by sulphite cooking, which is yellow oil distilled together with the recovery gas. The main component is parasimen.	sulphite turpentine, sulfiturpentine	

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No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
2027	酸処理	SAN SYORI	After bleaching for the purposes of stabilizing brightness and reducing ash content, treatment of pulp by sulphurous acid solution. It is ordinarily used in dissolving pulp, and also used in the case of paper making pulp.	acid treatment	
2028	酸性亜硫酸法	SANSEI ARYŪSAN HŌ	A kind of sulphite process. See 2003 Sulphite Process	acid sulphite process, acid sulfite process	
2029	酸素漂白	SANSO HYŌHAKU	Bleaching process for removing lignin by reacting the unbleached pulp in alkalin with oxygen.	oxygen bleaching	
2030	重亜硫酸法	JŪ ARYŪSAN HŌ	A kind of sulphite process. See 2003 Sulphite Process	bisulphite process, bisulfite process	
2031	蒸解	JŌKAI	To carry out the high-temperature and high-pressure treatment by using chemicals for the purpose of pulping the fiber base material. There are kraft cooking, sulphite cooking, etc. according to the chemical to be used.	cooking	
2032	蒸解がま	JŌKAI GAMA	The kiln for cooking timber chips and other base materials for the purpose of making pulp. In the case of timber, it is, in many cases, used by pressurizing. There are various kinds depending upon shape, heating process, etc. It is, in some cases, called as "wood kiln".	digester	

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
2033	スクリーン	SUKURĪN	An apparatus to be used for removing coarse fibers, bundled fibers, and other foreign matters mixed in the base substances when making pulp and papers. These are classified into coarse screen, fine dressing screen, etc. according to the purpose and into flat plate type, rotary type, centrifugal type, pressurizing type, etc. according to the type.	screen	
2034	スタッフチェスト	SUTAFU CHESUTO	A storage tank of pulp suspension liquid. It is in many cases, of tile hanging.	stuff chest	
2035	スラッシュャー	SURASSHĀ	A machine arranged with saws at definite intervals to cut base wood to be fed continuously. For saws, round type or band type saws are used.	slasher	
2036	スリバースクリーン	SURIBĀ SUKURĪN	A screen for sieving slivers generated at making mechanical pulp. Usually, the vibration type screen is used.	sliver screen	
2037	製薬塔	SEIYAKUTŌ	An absorption tower for sulphurous gas to be used for making sulphite-process cooking liquid. In the case of using two units in a series, the towers are divided into weak acid tower and strong acid tower according to acidity of absorption liquid.	acid tower	

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
2038	セミケミカル法	SEMIKEMIKARU HŌ	An intermediate process between the chemical pulp process and the mechanical pulp process, and it is the method for making pulp after cooking chips until these become rather soft, by making fibrous by using a refiner. In wood pulp, the yielding rate is 65 to 85 %. There are three types of acidic process, neutral process and alkaline process.	semichemical process	
2039	全アルカリ	ZEN ARUKARI	In cases of soda process and kraft process, the marking method for alkali amount in cooking liquid. The total alkali compounds ($\text{NaOH} + \text{Na}_2\text{S} + \text{Na}_2\text{CO}_3$, etc.) are expressed by converting to Na_2O or NaOH .	total alkali	
2040	前加水分解クラフト蒸解	ZEN KASUI BUNKAI KURAFUTO JŌKAI	The process for kraft cooking after pre-cooking chips by steam or acidic chemical liquid as pretreatment. By this process, pentosan is removed. This process is used for making dissolved kraft pulp and cooking of bagasse and the like.	prehydrolysis kraft cooking	
2041	洗浄機	SENJŌKI	A machine for washing pulp. There are extractor, thickener, etc.	washer	
2042	セントリクリーナー	SENTORI KURĪNĀ	An apparatus of reverse circular cone shape for removing foreign matters in pulp suspension by using centrifugal force.	centri-cleaner	
2043	ソーダ法	SŌDA HŌ	The chemical-pulp making method by cooking fiber base materials of timber and others with cooking liquid with sodium hydroxide as main compound.	soda process	

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
2044	多段漂白	TADAN HYŌHAKU	Bleaching to be carried out in several treatment stages. It is carried out in combination of chlorine, hypochlorite, chlorine dioxide, sodium hydroxide treatments. In comparison with single stage bleaching, its cost is lower and the quality of the made pulp is better.	multistage bleaching	
2045	脱インキ	DATSU INKI	Making of white pulp by removing ink from printed waste paper. The waste paper is dispersed in water, the ink is liberated by mechanical or chemical process, and removed by screen washing or flotation method.	deinking	
2046	脱リグニン	DATSU RIGUNIN	To remove lignin by chemical process from timber and the like containing lignin. This process is utilized for pulping, bleaching, etc.	delignification	
2047	縦形スクリーン	TATEGATA SUKURĪN	A vertical type centrifugal screen. Pulsation of pulp suspension liquid is generated relative to the screen plate by action of its inner rotary vanes to remove fiber lumps adhered on the screen surface, and the screen plate is washed always to improve dust-removing effect. See 2033 Screen.	vertical screen	

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No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
2048	チオリグニン	CHIORIGUNIN	Deep brown lignin containing 1 to 3 % sulfur obtained by neutralizing KP waste (black) solution by acid. It is called also as kraft lignin, sulphate lignin. It is utilized for heat-supply matters at the time of soda recovery from waste liquid and as reducing agent for generating sodium sulphide. A part of it is used as the additive for plastic base material or synthetic rubber.	thiolignin, kraft lignin, sulphate lignin, sulfate lignin	
2049	チップパー	CHIPPĀ	A machine to make chips. Timber is cut off by its rotary disk attached with knives radially.	chipper	
2050	チップ	CHIPPU	Small pieces of timber, bamboo, etc. are made by chipper. Those are the base material for pulp, fiber board, etc.	chip	
2051	チップスクリーン	CHIPPU SUKURĪN	A machine for screening chips. The chips suitable for cooking are obtained by removing oversize chips and scraps. There are vibration type and rotary type.	chip screen	
2052	直接蒸解法	CHOKUSETSU JOKAI HO	The cooking process by directly blowing high pressure steam into cooking kiln in the case of pulp cooking. Its apparatus is simple in comparison with indirect cooking process, but there is such defect that the cooking liquid becomes thin due to steam for heating.	direct cooking process	

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
2053	ディスクリファイナ	DISUKU RIFAINĀ	A refiner to grind chips or pulp by feeding them between the rotating circular grinding disks.	disk refiner	
2054	ディフューザ	DIHYŪZĀ	A tank to discharge kraft pulp or soda pulp from the cooking kiln. Further, herein the black liquor in pulp is separated and washed with water.	diffuser	
2055	デッカー	DEKKĀ	A concentrator for peeling off, by dehydration of pulp suspension liquid by using a cylinder mould and transferring into the couch roll.	decker	
2056	ドラムバーカー	DORAMU BĀKĀ	A such barker that skin peeling is carried out by impacting base woods with each other in a rotating drum. There are wet type and dry type.	drum barker	
2057	トール油	TŌRU YU	Oily substance to be obtained by separating to take creamy substance (called as skimming) floating on the upper part of soda-process or kraft-process black liquor of soft wood and by decomposing it with acid. The main component is the mixture of resin acid and fatty acid and it is used for base material of size agent, paint, soap, etc.	tall oil	
2058	ノットスクリーン	NOTTO SUKURĪN	An apparatus to screen non-cooked substance at the time of making chemical pulp. The aperture of the screen is generally coarse. See 2033 Screen.	knot screen	

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No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
2059	バーカー	BĀKĀ	A machine for barking the base wood. There are drum type, rotary knife type, water-pressure jet type, etc.	barker	
2060	ハイドロサルファイト漂白	HAIDOROSARUFAITO HYŌHAKU	Reducing bleaching by using sodium of hydro-sulphite and the like. It is used for mechanical pulp and the like.	hydrosulphite bleaching, hydrosulfite bleaching	
2061	白液	HAKUEKI	The transparent alkali liquid after caustification of green liquor of kraft process, or soda process. It is used for cooking.	white liquor	
2062	パルパー	PARUPĀ	A machine for disaggregation of pulp, waste paper, broke, etc. The machine generates vortex flow of water by rotary vane in its tank to disaggregate by its action. There are longitudinal type and lateral type.	pulper	
2063	パルプ化	PARUPUKA	Making the pulp by disaggregation of fibers by treating mechanically and chemically the fiber base material of timber, old cloth, straw, waste paper, etc.	pulping	
2064	パルプ回収装置	PARUPU KAISYŪ SŌCHI	An apparatus for recovery of pulp in white water. There are precipitation type, filtration type, floating type, etc.	pulp saver	

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
2065	漂白	HYŌHAKU	Increasing the brightness of pulp by removing coloured impurities in pulp or by changing to colourless. As bleaching agent, oxidizing agent and reducing agent are used. In the case where fluorescent dye is used for appearance of white, it is called as fluorescent whitening.	bleaching	
2066	ブロータンク	BURŌ TANKU	A tank to blow out pulp after cooking. It is generally an airtight steel tank, having pressure resistant construction.	blow tank	
2067	マグネファイト法	MAGUNEFAITO HŌ	Bisulphite process using magnesium hydrogensulphite solution for cooking solution. The permeability of liquid is superior and the recovery of magnesia is easy.	magnefite process	
2068	目立て車	METATE GURUMA	A steel wheel for making burrs on a grindstone. In shape of burrs, there are diamond shape, spiral shape, etc.	grindstone dresser, burr	
2069	有効アルカリ	YŪKŌ ARUKARI	Marking method of alkali quantity for cooking action of kraft process cooking liquid. Effective alkali quantity = $\text{NaOH} + 1/2 \text{Na}_2\text{S}$ is converted to Na_2O or NaOH to be marked.	effective alkali	
2070	遊離酸	YŪRISAN	In the case of sulphurous acid pulp cooking solution, the sum of sulphurous acid of acidic form and $1/2$ of sulphurous acid of hydrogensulphite form. It is determined by phenolphthalein indicator.	free acid	

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No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
2071	リグノスルホン酸	RIGUNOSURUHON SAN	Water-soluble lignin compound to be obtained when sulphite cooking the base material of timber and others containing lignin. The main component of sulphite pulp exhaust liquid.	Lignosulphonic acid, lignosulfonic acid	
2072	リファイナー	RIFAINĀ	A machine for carrying out crushing by grinding of chips, or refining of pulp, fine crushing, etc. There are disk type, cone type, drum type, etc.	refiner	
2073	硫化度	RYŪKADO	Marking method of quantity of sulphide in kraft process cooking liquid. The percentage of Na_2S expressed by converting to Na_2O or NaOH relative to active alkali $\text{Sulphidity} = \frac{\text{Na}_2\text{S}}{\text{NaOH} + \text{Na}_2\text{S}} \times 100$	sulphidity, sulfidity	
2074	硫酸塩法	RYUSANEN HŌ	Same as 2020 Kraft Process.	sulphate process, sulfate process	
2075	緑液	RYOKUEKI	Green-colour aqueous solution dissolving fused sodium at the time of recovery of chemical liquid of soda process or kraft process. It is as white liquor by causticizing for cooking.	green liquor	
2076	連続蒸解	RENZOKU JŌKAI	Cooking to carry out automatically and continuously the filling kiln with chips, transport liquid, heating, chemical liquid circulation, to discharge. It is used for cooking of kraft pulp, semichemical pulp, etc. For the apparatus, there are longitudinal type, lateral type, etc.	continuous cooking	

3.3 Pulp Type

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
3001	麻パルプ	ASA PARUPU	Pulp manufactured generally from flax, hemp, ramie, manila hemp, etc. The pulp is used for base material of special paper such as cigarette paper, carbon paper, condenser paper, tag, abrasive paper, cable insulating paper, etc.	hemp pulp	
3002	亜硫酸パルプ	ARYUSAN PARUPU	Pulp manufactured by sulphite process. It has medium degree strength and superior paper making property, and according to the degree of cooking, there are divisions of easy-bleachable and difficult bleachable pulp. In comparison with kraft pulp, bleaching and refining are easy, it is used for main base material of almost all types of papers especially, refined pulp is used as dissolving pulp. The abbreviation is SP. See JIS P 2101 and JIS P 2701.	sulphite pulp, sulfite pulp	
3003	化学パルプ	KAGAKU PARUPU	Pulp manufactured by treating chemically fiber base materials of wood and others in broad definition. Usually it means the pulp of wood. There are sulphite pulp, kraft pulp, soda pulp, etc. The abbreviation is CP.	chemical pulp	
3004	かっ色碎木パルプ	KASSHOKU SAIBOKU PARUPU	Brown pulp manufactured by softening wood by pretreating with hot water and by treating mechanically.	brown groundwood (pulp)	

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
3005	機械パルプ	KIKAI PARUPU	Pulp manufactured by treating mechanically wood or chips as they are or while heat treating them. It becomes the main base material for paper making or fiber board. There are ground wood pulp, refiner ground-wood pulp, thermomechanical pulp, etc. according to the manufacturing method. The abbreviation is MP.	mechanical pulp	
3006	クラフトパルプ	KURAFUTO PARUPU	Pulp manufactured by kraft process. Its strength is large and it is difficult bleaching. The unbleached kraft pulp of soft wood becomes the kraft paper for heavy bags and that obtained by multistage bleaching becomes the main base material of good quality paper. Dissolving kraft pulp is also manufactured by carrying out pre-hydrolysis. The abbreviation is KP. See JIS P 2102 and JIS P 2701.	kraft pulp, sulphate pulp, sulfate pulp	
3007	ケミグラフトパルプ	KEMIGURANDO PARUPU	Pulp manufactured by penetrating chemical liquid into wood and treating mechanically. For manufacturing methods, there are chip method and log method, and divided according to using chemical liquid into cold soda process, neutral sulphite process, etc. The abbreviation is CGP (or CMP).	chemigroundwood pulp, chemimechanical pulp	
3008	合成パルプ	GŌSEI PARUPU	Synthetic resin (mainly polyolefin) made pulpy state by giving hydrophilic property. It is made paper in single or compounded with wood pulp.	synthetic pulp	

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
3009	広葉樹パルプ	KŌYŌJU PARUPU	Pulp manufactured by using hardwood as the base material. The fibers are short in comparison with soft wood pulp, and the average fiber length is about 1 mm. It consists of mainly wooden fibers, but includes vessels and soft cells. The abbreviation is PL (L is the abbreviation of Laubholz in German).	hardwood pulp	
3010	コールドソーダパルプ	KŌRUDO SŌDA PARUPU	High yield pulp manufactured after immersing chips in sodium hydroxide solution at ordinary temperature, by refining. In some cases, it is called as REI SODA PARUPU.	cold soda pulp	
3011	砕木パルプ	SAIBOKU PARUPU	Mechanical pulp manufactured by grinding wood by using a grinder. According to the degree of grinding, there are divisions of special fine groundwood pulp, ordinary groundwood pulp, etc. It becomes the main base material of low grade paper such as newsprint paper. The abbreviation is GP. See JIS P 2103.	groundwood (pulp), stone groundwood	
3012	サーモメカニカルパルプ	SĀMOMEKANIKARU PARUPU	Mechanical pulp manufactured by heating chips by steam (100 to 130°C) for a short time and by refining at a high temperature. The fact that its strength is higher than RGP (refiner groundwood pulp) and shives are less, are its characteristics. The abbreviation is TMP.	thermomechanical pulp	

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
3013	針葉樹パルプ	SHINYŌJU PARUPU	Pulp manufactured by using soft wood as the base material. The fibers are tracheids and their fiber lengths are generally 2.0 to 4.5 mm in many cases. It mainly consists of fibrous cells, and the quantity of dirt cells is extremely little. The abbreviation is NP (N is abbreviation of Nadelholz in German).	soft wood pulp	
3014	セミケミカルパルプ	SEMIKEMIKARU PARUPU	Pulp manufactured by semichemical process. For the base material, hardwood is used, its yield is high, and content of pentosan is much. The unbleached pulp becomes the main base material of corrugating medium of corrugated fiberboard, and newsprint and the bleached pulp is used with mixed in chemical pulp. The abbreviation is SCP.	semichemical pulp	
3015	ソーダパルプ	SŌDA PARUPU	Pulp manufactured by soda process. The bleached pulp has bulk and is used for blotting paper, book paper, paper cover, writing paper, etc. The abbreviation is AP.	soda pulp	
3016	中性亜硫酸セミケミカルパルプ	CHŪSEI ARYŪSAN SEMIKEMIKARU PARUPU	Semichemical pulp manufactured by cooking by using sodium sulphite added with a small amount of alkali as buffer. The damage of fibers is little, the content of pentosan is large and the yielding rate is high. It is suitable for pulping of hardwood, straw, etc. The abbreviation is NSSCP.	neutral sulphite semichemical pulp, neutral sulfite semichemical pulp	

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
3017	特碎木ハルフ	TOKU SAIBOKU PARUPU	Groundwood pulp of high grade manufactured by grinding specially finely. See JIS P 2103.	special fine groundwood (pulp)	
3018	並碎木ハルフ	NAMI SAIBOKU PARUPU	Groundwood pulp for general use manufactured by grinding ordinarily. See JIS P 2103.	ordinary ground- wood (pulp)	
3019	溶解ハルフ	YŌKAI PARUPU	Pulp refined chemically in high degree. It is used mainly by dissolving in chemicals. It becomes the main base materials for chemical fibers, cellophane, cellulose derivatives, etc. The abbreviation is DP. See JIS P 2701.	dissolving pulp	
3020	リファイナー碎木ハルフ	RIFAINĀ SAIBOKU PARUPU	Mechanical pulp manufactured by using wood chips or sawdusts, etc. as the base material and treating by refiner. The abbreviation is GRP or RMP.	refiner groundwood pulp, refiner mechanical pulp	
3021	硫酸塩ハルフ	RYŪSANEN PARUPU	Same as 3006 kraft pulp.	sulphate pulp, sulfate pulp	
3022	リントナーハルフ	RINTĀ PARUPU	Pulp made by refining short hairs (linters) with cotton fruits. The content of α -cellulose is large and it becomes the base material of special paper, recovery cellulose, and cellulose derivatives.	linter pulp	
3023	わらハルフ	WARA PARUPU	Pulp manufactured from wheat straw or riceplant straw. The ratio of length to diameter of its fiber is larger than that of wood. Because hemicellulose is contained in large amount, it is easily heated. The fact that ash content is large is its characteristic.	straw pulp	

3.4 General Terms for Papers and Paperboards

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
4001	板紙	ITAGAMI	Generic term of thick papers compounded with wood chemical pulp, groundwood pulp, straw pulp, waste paper, etc. It is made by using a paperboard machine, the quality of paper is hard, and strong. There are base paper of corrugated fiberboard, straw board, white board, etc., and used for wrapping material and the like.	board, paperboard	
4002	裏	URA	Rough surface of paper. Generally it is the surface contacting with wire at paper making.	wire side, back side	
4003	A列本判	EIRETSU HONBAN	Standard size of base paper in our country, having the size of 625 mm x 880 mm. See JIS P 0138, and JIS P 0202.	standard size of series A	
4004	表	OMOTE	Smooth surface of paper. Generally it is the opposite side to the side contacting the wire at paper making.	top side, felt side	

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
4005	紙	KAMI	(1) Paper manufactured by twining-around vegetable fibers and other fibers and by glueing. In broad definition, synthetic paper manufactured by using synthetic high molecular substances is included in it. In our country it is divided into machine-made paper, paper board, Japanese paper, synthetic paper, etc. and according to use there are divisions of printing paper, writing paper, drawing paper, wrapping paper, filter paper, blotting paper, paperboard, electrical insulating paper, SHOJI-screen paper, etc. (2) Term corresponding to paperboard.	paper	
4006	紙加工仕上寸法	KAMI KAKŌ SHIAGE SUNPŌ	The trimmed sizes specified for book, magazine, security, business paper, drawing paper, tablet paper, etc. There are series A and series B and there are 0 to 10 respectively. See JIS P 0138.	trimmed size of paper	
4007	紙の寸法	KAMI NO SUNPŌ	Cutting size specified according to kind, brand, etc. There are, in our country, series A, series B, series 4 x 6, etc. and also untrimmed size and trimmed size of paper. See JIS P 0138, and JIS P 0202.	size of paper	

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
4008	原紙寸法	GENSHI SUNPŌ	Standard size of base paper. It corresponds to trimmed size of paper and is the size containing cutting allowance. In JIS, 5 classes of standard sizes of series A and series B, series 4 x 6, KIKU size (small octavo), patron size are specified. Mainly it is used for book paper, security paper, business paper, etc. See JIS P 0202.	untrimmed size of paper	
4009	紙 匹	SHIHITSU	Paper on a paper machine or wrapped out and as long as it is.	web	
4010	損 紙	SONSHI	Waste paper generated in paper making process. There are wet broke from wet part of paper machine and dry broke from dry part and thereafter, and finishing out work. These are reused by carrying out the disaggregation.	broke	
4011	縦方向 (紙の縦方向)	TATEHŌKŌ (KAMI NO TATE-HŌKŌ)	The direction of paper same as advancing direction when making paper by paper machine. Generally, most fibers are directed in this direction. It is called also as flow direction. The abbreviation is MD. See 4015 cross direction.	machine direction	
4012	平 判	HIRABAN	Paper trimmed to a sheet of rectangular shape of specified size. There are series A, series B, etc. in size. See JIS P 0138.	flat paper, flat sheet	
4013	B列本判	BĪRETSU HONBAN	Standard base paper size in our country having size of 765 mm x 1035 mm. See JIS P 0138, and JIS P 0202.	standard size of series B	

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
4014	巻取り	MAKITORI	Continuous paper rolled to required width and diameter. Term relative to flat paper.	roll (of paper)	
4015	横方向 (紙の横方向)	YOKOHŌKŌ (KAMI NO YOKO- HŌKŌ)	In the case of forming paper by a paper machine, the direction of paper at right angles with the advancing direction of paper in general. The abbreviation is CD. See 4011 machine direction.	cross direction	
4016	連	REN	A unit of paper and paperboard in trade. In our country, in the case of flat paper, 1000 sheets of paper trimmed to the specified size, in the case of paperboard, 100 sheets, in the case of roll, quantity corresponding to 1000 sheets of specified size paper, and in the case of paperboard, quantity corresponding to 100 sheets are respectively taken as one ream.	ream	
4017	連量	RENRŪ	Mass of one ream paper. In our country it is expressed by kilogram (kg).	ream weight	

3.5 Paper Manufacture

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
5001	青味付け	AOMIZUKE	Adding of blue dye or pigment in order to erase yellow colour of pulp and for formed paper to be viewed white.	blueing	
5002	アスベストロール	ASUBESUTO RÖRU	Roll manufactured by compressing with passing the formed paper mixed with asbestos fibers through the shaft and by forming. It is used for super calender to be exposed to high temperature such as in the case of manufacturing glassine paper, and condenser paper.	asbestos roll	
5003	板紙抄紙機	ITAGAMI SHÖSHIKI	A machine for manufacturing paperboard. According to the thickness and number of combination there is cylinder-paper machine having many cylinder moulds, and for Fourdrinier type there are one of same construction as that of ordinary paper machine, and other than that, there are types such as double slice, inverform, combination of cylinder mould and Fourdrinier, twin wire, etc.	board machine	
5004	色 違 い	IROCHIGAI	Difference in colour matching with sample.	offshade	

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
5005	インバーフォーマ(マシン)	INBĀFŌMU (MASHIN)	A paper machine of such construction that 1 to 5 sets of independent short, upper metallic screens are equipped with the upper part of Fourdrinier part, and it dehydrates in both upper and down directions during feeding with putting base paper between upper and lower metallic screens. The construction of press part and thereafter is same as that of general paper machine. Its characteristic is that it is capable of operating at a speed higher than that of cylinder paper machine, its finishing is flat and smooth, its formation is uniform, and it is capable of forming paper having bulk.	inverform (machine)	
5006	インバープレス	INBĀPURESU	A press of which upper roll is hung with a blanket at the arrangement where hanging of blanket is reverse at the press part of paper machine. Its characteristic is that the wire marks are removed.	inverpress	
5007	エアナイフコーティング	ĒA NAIFU KŌTINGU	Coating process of paper for carrying out regulation of coating amount and making uniform by blowing air flow to coating surface from slit after roll coating.	air knife coating	
5008	エキスパンダーロール	EKISUPANDĀ RŌRU	A roll to be used for preventing generation of cockles of wire, blanket, paper, etc.	expander roll	

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
5009	エージング	ĒJINGU	(1) The operation or phenomenon where the substance is held under definite conditions and the chemical change or colloid change is so advanced as to be adequate to using purposes. It is called also as "JUKUSEI". For example, it is carried out by size agent, paper-reinforcing agent, moisture preventive agent treatments, etc. (2) The fact that the quality of paper or paperboard deteriorates as the lapse of time. It is called also as "RŌKA".	ageing, aging	
5010	エプロン	EPURON	The sheet for feeding by flowing stuff on wire from the flow box of Fourdrinier paper machine.	apron	
5011	押出しコーティング	OSHIDASHI KŌTINGU	The process of coating the base paper while extruding fused resin in filmy state by using an extruder.	extrusion coating	
5012	オフマシンコーティング	OFU MASHIN KŌTINGU	The process of coating the base paper formed by a paper machine by means of an independent coater. The term corresponding to on-machine coating.	off-machine coating	
5013	オンマシンコーティング	ON MASHIN KŌTINGU	The process for coating on paper at the intermediate of drying part of paper machine. It is suitable to mass production. The term corresponding to off-machine coating.	on-machine coating	

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
5014	カゼイン	KAZEIN	Mixture of proteins existing in cow's milk and the like. The equi-potential point pH is 4.5 to 4.6. It is manufactured by precipitating from nonfat milk by acid or enzyme. It is used for adhesives, water paint, emulsifier, etc. for coated paper or other coating.	casein	
5015	片つや付け	KATA TSUYATSUKE	Glazing at the same time at drying by pressing wet paper to Yankee dryer surface by touch roll.	machine glazing	
5016	片持ちばり方式	KATAMOCHIBARI HOSHIKI	In the method of exchanging rapidly the wire of Fourdrinier paper machine, the style where the wire is supported at the back side of forming paper by cantilever, the support of front side is detached and the wire is pressed-in as it is stretched.	cantilever method	
5017	カーテンコーティング	KĀTEN KŌTINGU	The process for coating by flowing continuously the paint in a definite thin film state and allowing paper, paperboard, etc. to run under it to coat on its surface.	curtain coating	
5018	ガムロジン	GAMU ROJIN	The resin removed of turpentine oil by distilling raw colophonium taken from pine trunk. In paper-making factory, it is used for sizing agent.	gum rosin	
5019	カレンダー	KARENDĀ	A machine for glazing by overlapping several iron rolls, and by passing paper between them to make the surface flat and smooth.	calender, calender stack	

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
5020	完成紙料	KANSEI SHIRYŌ	The stuff prepared by mixing each material such as fibers, sizing agent, filler, dye, etc. so as to be paper immediately. See 5057 stuff.	furnish	
5021	乾燥シリンダー	KANSŌ SHIRINDĀ	A steel cylinder for passing steam through the inside for drying by pressing wet paper. It is so manufactured that it is capable of enduring the steam pressure, and of conducting heat easily.	drying cylinder	
5022	乾燥部	KANSŌBU	The part for drying paper by using a paper machine, coater, etc.	dryer part, dry part	
5023	カンバス	KANBASU	Canvas to be used when carrying wet paper to drying cylinder and pressing. In many cases, for the canvas cotton and synthetic fibers are used.	canvas	
5024	逆転プレス	GYAKUTEN PURESU	A pressing apparatus for erasing wire mark on paper by reversing advancing direction of wet paper by paper machine.	reversing press	
5025	逆流バット	GYAKURYŪ BATTO	A vat for cylinder mould paper machine of construction for flowing base substance in reverse direction against rotary direction of cylinder mould. When using this system, paper of bad formation but having larger thickness is obtained. The term corresponding to uni-flow vat.	counter-flow vat	

No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
5026	強光沢仕上げ	KYŌKŌTAKU SHIAGE	Generating strong gloss on paper by using Yankee dryer, super calender, friction calender, etc.	glazed finish	
5027	ギロチン断裁機	GIROCHIN DANSAIKI	A pressing cutter of which long knife moves downwards. It is used for flat-paper cutting.	Guillotine cutter	
5028	クーチロール	KŪCHI RŌRU	A roll for making felt easy in shifting by dehydrating wet paper at end of wire part (in the case of cylinder mould, the upper part) of paper machine.	couch roll	
5029	クラウン	KURAUN	The amount of convex at the middle part of roll for making the wire pressure of contact surface between rolls uniform over the whole length by press, calender, etc. It is expressed by difference between diameters of the middle part and the end part.	crown	
5030	グラビコーティング	GURABIA KŌTINGU	A coating process to transfer painting liquid on the paper by using gravure roll applied to its surface with convex and concave carving work by utilizing the principle of gravure printing machine. There are two fundamental types of direct gravure coating and offset gravure coating.	gravure coating	

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No.	Term (Japanese character)	Reading	Definition	Reference	
				English equivalent	
5031	グロスカレンダー	GUROSU KARENDĀ	An apparatus for grazing by finishing the surface to specular gloss, and pressing each one heat resistant rubber roll to both of circular cylinder into which high pressure steam is fed in, and by passing paper between them. It is used mainly for paper-board, coat paper, etc. Its characteristic is to increase bulk and printing adequateness more than calender finished paper.	gloss calender	
5032	けい光増白	KEIKŌ ZŌHAKU	Adding of such substance that absorbs ultraviolet rays and changes them to visible rays for improving apparent whiteness of paper and paperboard. There are such processes that fluorescent dye is added in stuff, that surface sizing is carried out, that surface coating is applied, and so on.	fluorescent whitening	
5033	懸垂式乾燥法	KENSUISHIKI KANSŌ HŌ	Process of heat-wind drying by hanging webs on bars to shift in drying chamber.	festoon drying	
5034	こう(叩)解	KŌKAI	Mechanical treating of fibers for paper making together with water as pretreatment for forming paper. In the case where cutting of fibers is main, it is called as free beating and where fibrillation is main, as wet beating. The final property of paper receives effect of this treatment in large amount and therefor this is important process.	beating, refining	