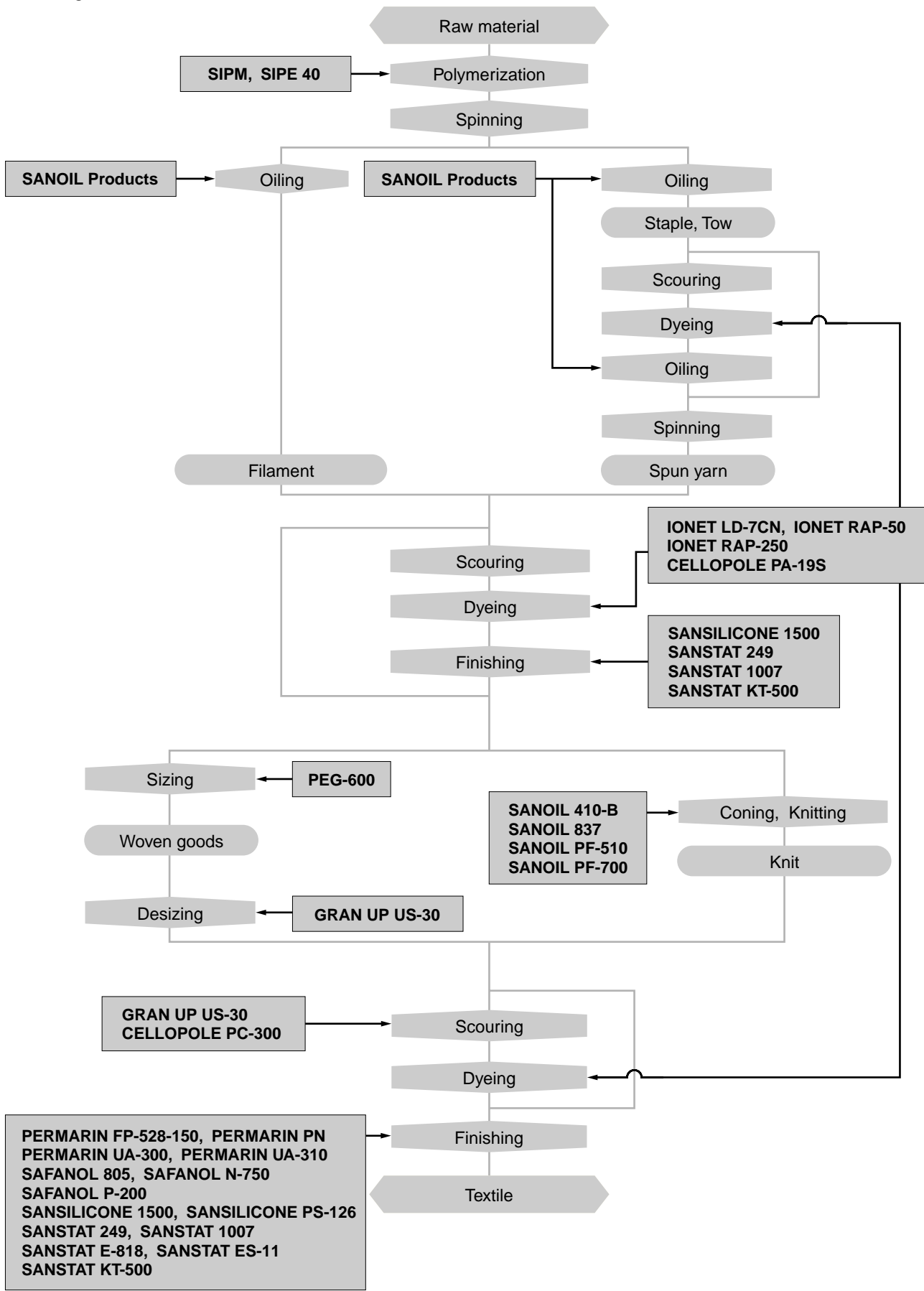
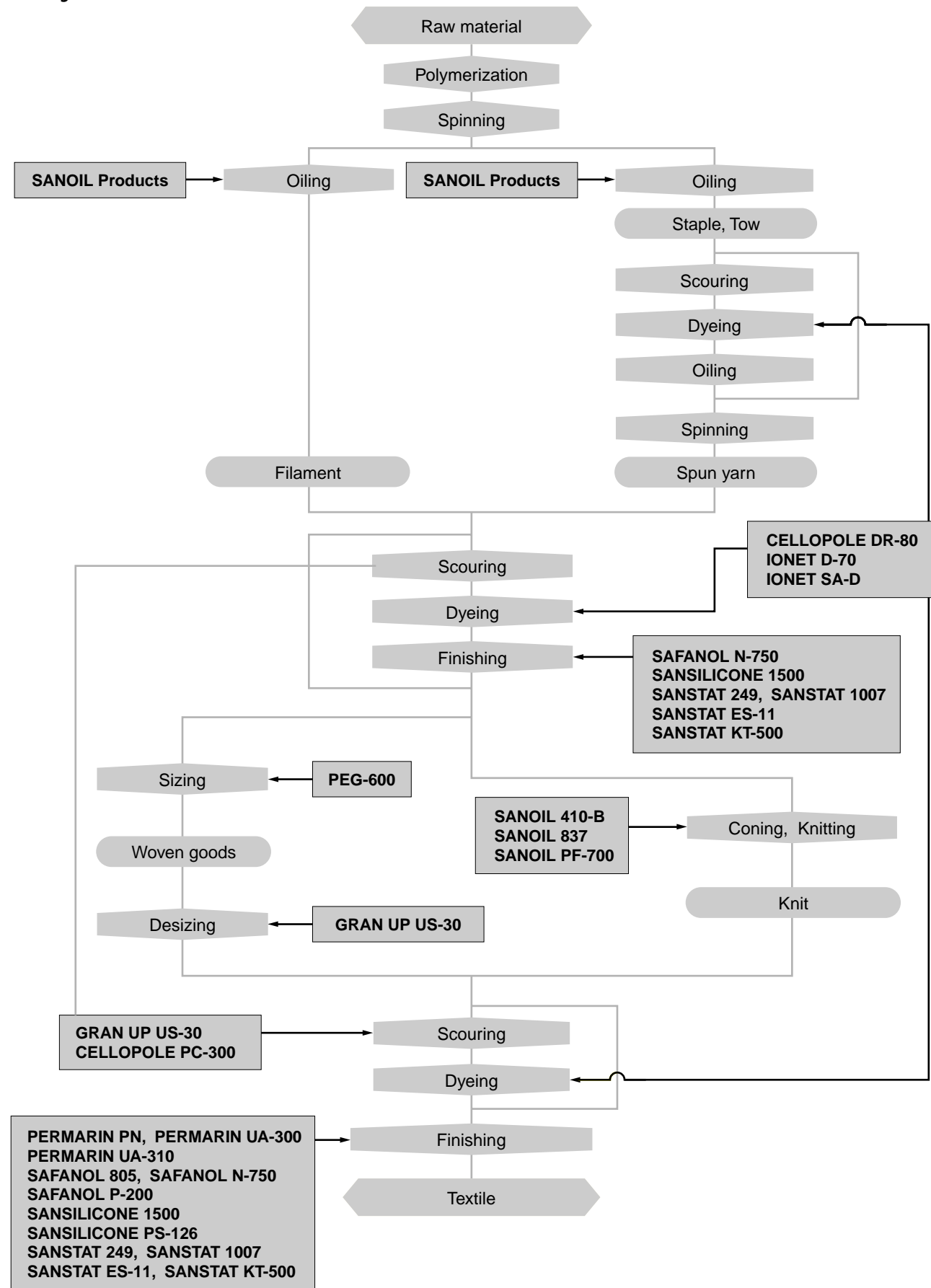


Processes for Textile Manufacturing and Our Performance Chemicals

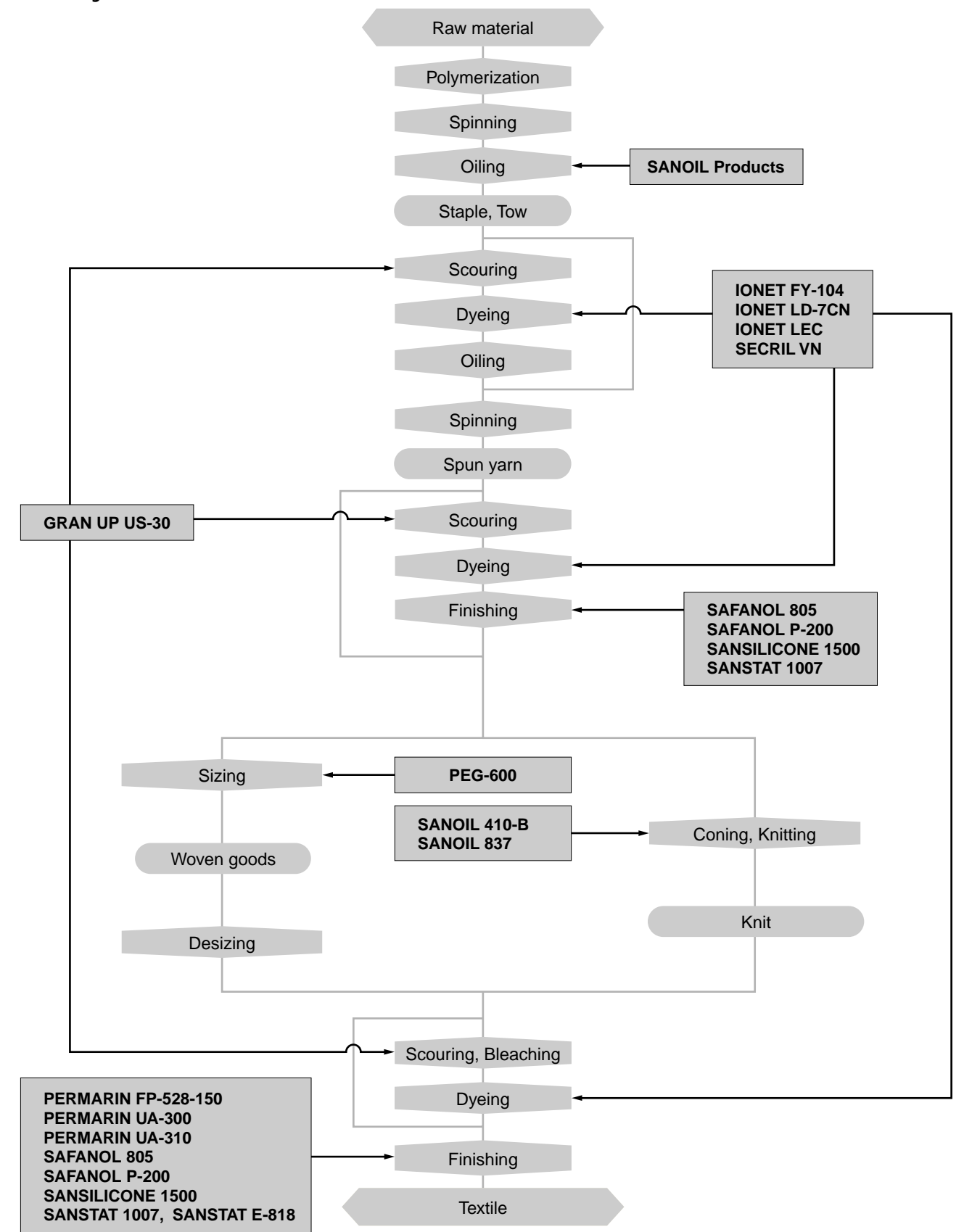
1. Polyester Textile



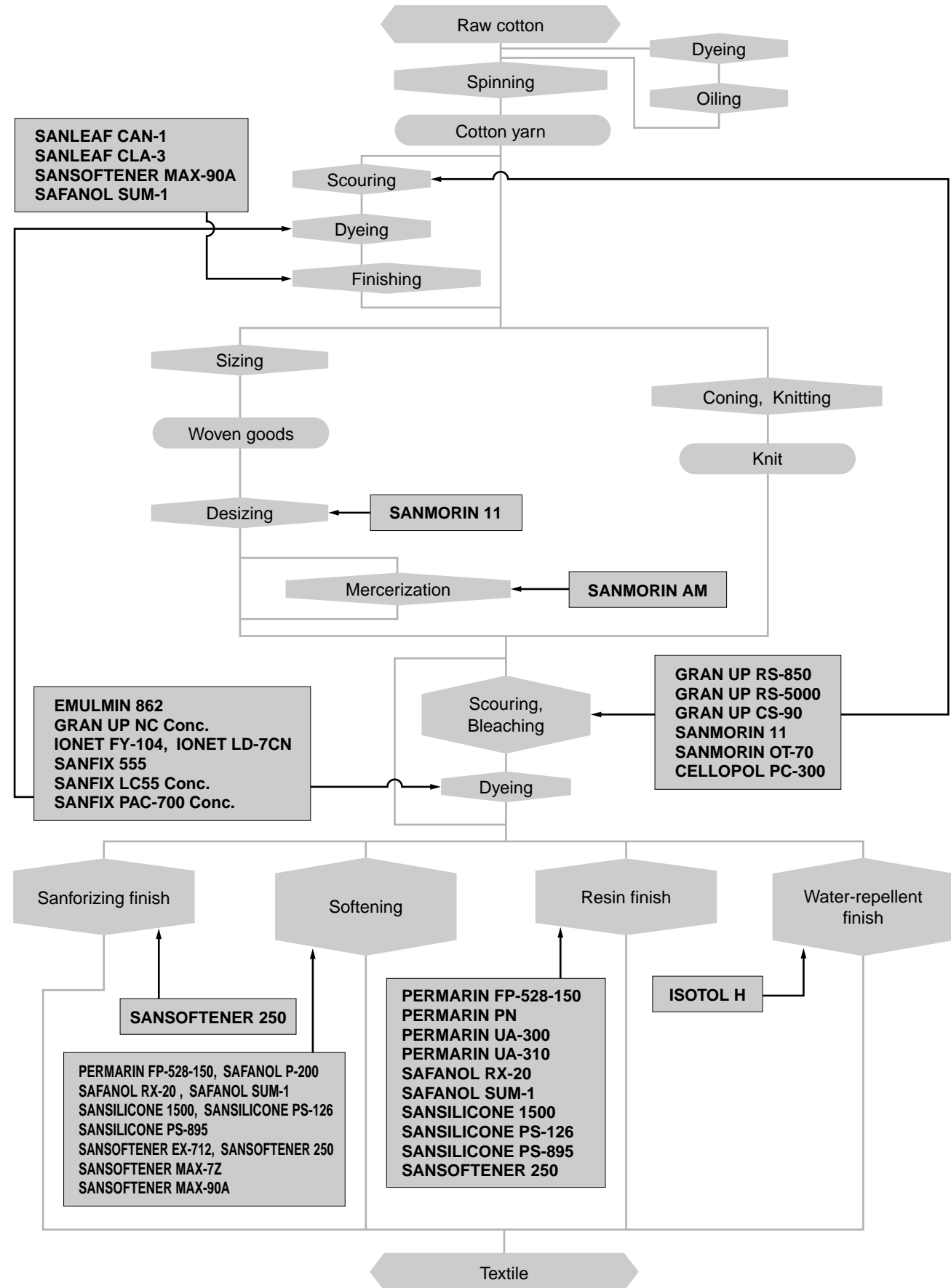
2. Nylon Textile



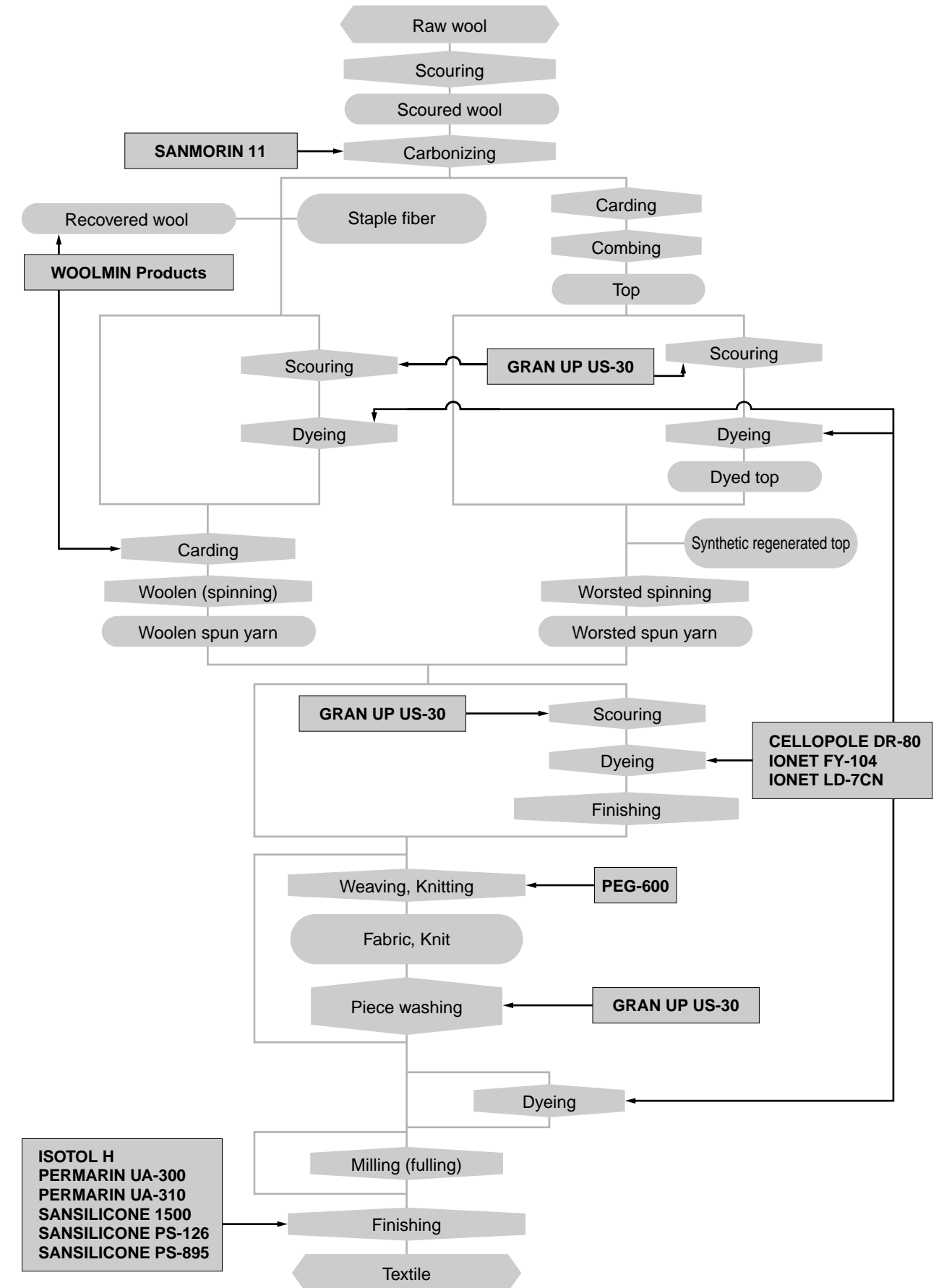
3. Acrylic Textile



4. Cotton Textile



5. Wool Textile



Performance Chemicals for Textile Industry

1. Spinning Lubricants

Product	Principal Component (Product Form)	Uses and Features
SOFTPOL Products	Sulfated oil (Paste)	Spinning lubricants for cellulose fibers. Imparts desirable lubricity and a good antistatic property to cellulose fibers and consequently improves the spinning property of the fibers during high speed operation. Moreover, imparts softness to the fibers. Is free from yellowing, acidification and unfavorable odor. Does not cause rusting on metal surfaces.
WOOLMIN Products	Mineral oil, nonionic and anionic surfactants (Liquid)	Spinning lubricants for wool. Ensures a smooth wool spinning due to its excellent lubricating property. Spreads out quickly on wool. Work effectively in both woolen system and worsted system.
SANOIL Products		Fiber spinning lubricants for synthetic filaments. Imparts desirable smoothness and antistatic properties to undrawn synthetic filaments and also imparts easy bundling, resulting in smooth processing through various operations including spinning, drawing, winding, etc. Fiber spinning lubricants, yarn spinning lubricants for synthetic staple and tow. Imparts excellent lubricity and antistatic properties to synthetic fibers and synthetic staples such as nylon, acrylic and polyester, resulting in smooth fiber/yarn spinning processing.

2. Knitting and Weaving Oils

Product	Principal Component (Product Form)	Uses and Features
SANOIL 410-B	Mineral oil and anionic surfactant (Liquid)	Coning and knitting oil for synthetic yarns. Imparts lubricity and antistatic properties to yarns. Cones of yarn oiled with SANOIL 410-B do not lose their shape even under high speed processing, and end-breakage of yarns hardly occurs.
SANOIL 837	Mineral oil and anionic surfactant (Liquid)	Coning and knitting oil for synthetic yarns. Imparts excellent lubricity and antistatic properties to yarns, minimizing end-breakage in the coning/knitting process. Can be readily removed from the yarns through ordinary scouring.
PEG-600	Polyethylene glycol (Liquid)	Additive for a warp sizing agent. Helps a sizing agent penetrate into yarns. Imparts to yarns both good smoothness and antistatic properties, improving the weaving property of yarns.
SANOIL PF-510 SANOIL PF-700	Mineral oil and anionic surfactant (Liquid)	Coning and knitting oils for synthetic yarns. The amount of SANOIL PF-510 scattered during oiling process with roller-touch method is small. Impart lubricity to yarns, antistatic properties and heat resistance. Can be easily removed from fibers through scouring.

3. Scouring and Penetrating Agents

Product	Principal Component (Product Form)	Uses and Features
SANMORIN 11	Polyoxyethylene alkyl ether type nonionic surfactant (Liquid)	Wetting and penetrating agent. Exhibits excellent penetrating and wetting properties when used in scouring, bleaching, dyeing and other processes. Remarkably reduces the surface tension of the solution even at low temperatures. Is eminently suitable for the treatment of thick, dense fabrics and high-twisted yarns.
SANMORIN AM	Anionic surfactant (Liquid)	Penetrating agent for mercerization. Imparts an excellent penetrating property to alkaline solution in the mercerizing process. An alkaline solution containing SANMORIN AM produces less foam.
SANMORIN OT-70	Sulfosuccinate type anionic surfactant (Liquid)	Wetting and penetrating agent. Exhibits excellent wetting and penetrating properties and a surface tension lowering property. Displays an emulsification property and dispersibility.
CELLOPOLE PC-300	Anionic surfactant (Liquid)	A polycarboxylate-type chelating agent. Traps metal ions in water, such as calcium ion and magnesium ion, and improves the efficiency of agents used in fiber processing including scouring agents and leveling agents.
GRAN UP CS-90	Nonionic and anionic surfactant (Liquid)	Has an excellent desizing-scouring property even when approx. half of the normal amount of conventional scouring agents is used. Problems caused by foam hardly occur, and is suitable as a continuous desizing-scouring agent for cotton and cotton/polyester blend fabrics. Easy to handle, because GRAN UP CS-90 has low viscosity even at low temperatures and is readily soluble even in cold water.
GRAN UP RS-5000	Nonionic and anionic surfactant (Liquid)	Scouring agent for cotton knitted fabrics. Has a very low foaming property, and consequently can be used without any trouble in high speed circulating machines such as a jet dyeing machine. Has excellent penetrating and scouring properties.
GRAN UP RS-850	Nonionic and anionic surfactant (Liquid)	Scouring agent for cotton fabrics. Has a low foaming property, and has excellent penetrating and scouring properties.
GRAN UP US-30	Nonionic and anionic surfactant (Liquid)	Low-foaming scouring agent for Shin-gosen and synthetic fibers. Exhibits a scouring property equivalent to that of conventional products even when approx. two thirds the normal amount is used. Has excellent deoiling and redeposition-inhibiting properties.

4. Dyeing Auxiliaries (1)

Product	Principal Component (Product Form)	Uses and Features
IONET D-70	Anionic and nonionic surfactant (Liquid)	Leveling agent for acid dyes. When used in dyeing of nylon fibers with acid dyes, it enables the production of desirable level dyeings because of its moderate retarding and excellent migrating properties.
IONET SA-D	Nonionic surfactant (Liquid)	Leveling agent for acid dyes. Exhibits an adequate dye-retarding and excellent leveling properties.
CELLOPOLE DR-80	Polyoxyethylene type nonionic surfactant (Liquid)	Leveling agent for acid dyes and metal complex dyes. Possesses moderate retarding and excellent migrating properties, assuring excellent level dyeing.
IONET LD-7CN	Nonionic and anionic surfactant (Liquid)	Leveling agent for high-temperature dyeing of polyester fibers. Outstanding especially in dispersibility and effectively prevents the aggregation of disperse dyes. Remarkably improves the dispersing property of disperse dyes and ensures excellent level dyeing of polyester fibers in high-temperature dyeing. Exerts no negative influence on color yield.
IONET RAP-50	Nonionic and anionic surfactant (Liquid)	Leveling agent for rapid dyeing of polyester fabrics. Possesses not only a low-foaming property, in rapid dyeing, but also every conceivable property desired for a general purpose type leveling agent. Displays little or no color-reducing property which conversely improves color reproduction properties.
IONET RAP-250	Nonionic and anionic surfactant (Liquid)	Leveling agent for rapid dyeing of polyester fabrics. Inhibits foaming even when used in rapid dyeing employing low bath ratios. Exhibits an excellent leveling property, due to its excellent dispersibility, dye-migrating property, and adequate dye-retarding property. Furthermore, IONET RAP-250 has a low color-reducing property, and therefore, a good dye reproduction is obtained.
IONET TD-208	Special mixture (Liquid)	Leveling agent for high-temperature dyeing of polyester-textured yarn fabric. Has extremely high leveling and excellent migrating properties, and imparts resistance to streaky defect.
IONET LEC	Quaternary ammonium salt type cationic surfactant (Liquid)	Leveling agent for cationic dyes. Exhibits an excellent dye-retarding property, especially at the initial stage of dyeing. Makes it possible to dye acrylic fibers mildly with cationic dyes and obtain an ideal exhaustion curve.
SECRIL VN	Quaternary ammonium salt type cationic surfactant (Liquid)	Leveling agent for cationic dyes (migrator). Possesses a high dye-migrating property and produces level dyeing of acrylic fibers in combined use with a retarder. Exhibits excellent leveling effect even when redyeing fabrics.
EMULMIN 862	Nonionic surfactant with high molecular weight (granule)	Thickening agent for printing paste. Can produce a solution of the required viscosity level. Especially useful for thickening the emulsion thickener (extender), which is intended for use in textile printing.

4. Dyeing Auxiliaries (2)

Product	Principal Component (Product Form)	Uses and Features
SANFIX 555	Water-soluble cationic resin (Powder)	Dye-fixing agent of nonformalin type for direct and reactive dyes. Enhances wet color fastness of fabrics dyed with a direct dye even when used in small amounts.
SANFIX LC55 Conc.	Water-soluble cationic resin containing copper salt (Powder)	Dye-fixing agent for direct dyes. Greatly improves color fastness of dyed fibers. Containing copper salt, it is suitable for direct dyes which require aftertreatment with a cupriforous fixing agent.
SANFIX PAC-700 Conc.	Quaternary ammonium salt type cationic resin (Liquid)	Dye-fixing agent of nonformalin type for reactive dyes. Possesses an excellent dye fixing property. Even when used in small amounts, e.g. one half, compared with conventional fixing agents for reactive dyes, it improves the wet color fastness of dyed fabrics. Exerts no bad influence on the color fastness to light, nor affects their shades.
IONET FY-104	Nonionic surfactant (Flake)	Leveling agent for wool. Precipitation-proofing and stain-proofing agent for one-bath dyeing with a cationic/anionic dye mixture. Produces excellent leveling results on wool. When used in dyeing blend yarns or fabrics of acrylic/cotton, acrylic/rayon, acrylic/wool, acrylic/nylon, etc. with a cationic/anionic dye mixture, IONET FY-104 prevents those dyes from forming aggregates. Prevents cationic dyes from staining cotton or wool.
GRAN UP AX-33	Nonionic and anionic surfactant (Liquid)	Soaping agent for polyester blend fabrics. Effectively removes un-exhausted disperse dyes from polyester blend fabrics made of wool, cotton, rayon, etc.; produces blend fibers of good color fastness. When used in soaping process, the blend fiber can be dyed in one bath composed of disperse dyes and acid dye, etc., and the time of dyeing process can be shortened remarkably.
IONET RK-15	Quaternary ammonium salt type cationic surfactant (Liquid*)	Reduction clearing auxiliary. Exhibits excellent reduction clearing effects and consequently, assures a clear color shade as well as excellent color fastness. *May produce scums in some cases.
CELLOPOLE PA-19S	Nonionic surfactant (Liquid)	Improves color yield in HTS fixing method, and high color sharpness on light weight fabrics such as georgette and crape de chine is obtained. Color reducing hardly occurs, even when the fabric is irradiated before dyeing.
GRAN UP NC Conc.	Polyoxyethylene type nonionic and anionic surfactant (Liquid)	Soaping agent for reactive dyes. Has an excellent soaping property and remarkably improves the color fastness of dyed fabrics. Effective even in small amounts.

5. Softeners

Product	Principal Component (Product Form)	Uses and Features
SAFANOL SUM-1 SAFANOL SD-1	Cationic, anionic and nonionic surfactant (Emulsion)	Softener for cotton and polyester/cotton fabrics. Applicable to dyed cotton goods, regardless of previous processes (bleached, dyed in pale shade, or fixed after dyed in heavy shade).
SAFANOL N-750	Polyamide type cationic surfactant (Emulsion)	Softener for synthetic fibers. Imparts desirable softness and lubricity to synthetic fibers. Particularly suitable for the treatment of nylon knitted goods.
SAFANOL P-200	Polyamide type cationic surfactant (Powder)	Softener for cotton and synthetic fibers. Even when used in small amounts (e.g. one-tenth), compared with conventional cationic softeners (liquid and paste forms), this product imparts excellent softness to various fibers.
SAFANOL 805	Polyamide type cationic surfactant (Paste)	Softener for synthetic fibers. Imparts both desirable softness and a slight water repellency to synthetic fibers.
SANSILICONE PS-126	Modified silicone (Liquid)	Softener for cotton and synthetic fibers. Imparts supple softness and a elasticity to various textile fabrics.
SANSILICONE PS-895	Modified silicone (Liquid)	Softener for cotton and synthetic fibers. Imparts softness resistant to washing, and an excellent elasticity to cotton fabrics, cotton/synthetic fiber blended yarn fabrics and synthetic fiber fabrics.
SAFANOL RX-20	Nonionic and cationic surfactant (Fluid paste)	Softener for cotton and polyester/cotton fabrics. Imparts softness and good sewability on knitted cotton fabrics. Stable to the combination use with a resin-finishing agent and a fixing agent for direct or reactive dyes.
SANSOFTENER EX-712	Anionic and nonionic surfactant (Paste)	Softener for cotton and cotton/synthetic knitted goods. Imparts pleasant softness and lubricity to cotton knitted fabrics. Exerts no detrimental influence on the whiteness of the fabrics.
SANSOFTENER 250	Nonionic and anionic surfactant (Emulsion)	Softener for cellulose fabrics. Imparts softness and lubricity to cellulose fabrics. Compatible with resin-finishing agents, sizing agents and optical whitening agents. Does not cause yellowing of the fabrics. Especially suitable as a softener in shrink resistant finish.
SANSOFTENER MAX-7Z	Anionic surfactant (Paste)	Softener for cotton hosiery. Imparts a desirable sewability and softness to cotton hosiery.
SANSOFTENER MAX-90A	Anionic surfactant (Paste)	Imparts pleasant softness and sewability to knitted cotton fabrics. Exerts no detrimental influence on the whiteness of the fabrics. Easy to handle, due to its low foaming property and mechanically stable against phase separation.

6. Other Finishing Agents (1)

Product	Principal Component (Product Form)	Uses and Features
SANSILICON 1500	Silicone oil and weak anionic surfactant (Emulsion)	Lubricating agent. Imparts excellent lubricity to various yarns and fabrics. Remarkably improves the sewability of yarns; minimizes the end-breakage during machine sewing of yarns and eliminates the needle-hurt on fabrics.
SANLEAF CLA-3	Nonionic and anionic surfactant (Emulsion)	Finishing agent for cotton yarns and cotton/synthetic fiber blended yarns. Imparts both excellent lubricity and knittability to various yarns. Can be used together with anionic fluorescent dyes or blueing agents in the same bath.
SANLEAF CAN-1	Nonionic and cationic surfactant (Emulsion)	Finishing agent for cotton yarns and cotton/synthetic fiber blended yarns. Imparts excellent lubricity and softness to various yarns.
SANSTAT 249	Phosphate type anionic surfactant (Emulsion)	Antistatic agent for polyester fibers. Imparts excellent antistatic properties and softness to polyester fabrics.
SANSTAT ES-11	Anionic surfactant (Liquid)	Antistatic agent for synthetic fibers. Imparts excellent antistatic properties and minimally affects color fastness of polyester fabrics.
SANSTAT 1007	Betain type amphoteric surfactant (Liquid)	Antistatic agent for synthetic fibers. Imparts excellent antistatic properties to synthetic fibers even when used at a low concentration level.
SANSTAT E-818	Water-soluble cationic resin (Liquid)	Durable antistatic agent for synthetic fibers. Imparts excellent antistatic properties to synthetic fibers. Durable to repeated washings and dry cleanings. Particularly suitable for polyester fabrics and minimally affects color fastness of the fabrics.
SANSTAT KT-500	Cationic surfactant (Liquid)	Antistatic agent for synthetic fibers. Imparts excellent antistatic properties and scarcely affects color fastness of polyester fabrics. Excels in compatibility with other agents.
ISOTOL H	Paraffin wax and zirconium salt (Emulsion)	Water repellent. Imparts excellent water repellency to all kinds of fabrics. Can be easily applied to fabrics using standard methods.
PERMARIN PN	Polyethylene emulsion	Tear-strength improver for resin finished fabrics. Remarkably improves the tear strength, the abrasion resistance and the handle of fabrics when used in resin finishing including permanent-press finishing.

6. Other Finishing Agents (2)

Product	Principal Component (Product Form)	Uses and Features
PERMARIN FP-528-150	Polyethylene emulsion	Sewability improver for resin finished fabrics. Drastically improves the sewability of processed cloth and has good compatibility with other agents.
PERMARIN UA-300	Polyurethane emulsion (Anionic)	Binder for printing paste. When applied to cotton and synthetic fibers and dried at ambient temperature, forms a tough and stretchable film with high impact resilience and imparts washing and dry cleaning resistance to yarns. Also applicable as a binder for various agents.
PERMARIN UA-310	Polyurethane emulsion (Anionic)	Finishing agent for cotton and synthetic fibers. When applied and dried at ambient temperature, forms a tough and stretchable film. Applicable as a binder for various agents, because this product imparts washing and dry cleaning resistance to fibers.
CHEMITYLEN NGF-2 SGF-50	Mainly composed from fatty amide (Paste and liquid)	Lubricants in the spinning process of glass fibers. Impart excellent abrasion resistance to the glass fibers. CHEMITYLEN SGF-6 excels in heat resistance and SGF-50 imparts good adhesion to matrix resins, while NGF-2 is used in general.
CHEMITYLEN SGF-6	Nonionic surfactant (Liquid)	
CHEMITYLEN PEB-13	Unsaturated polyester (Powder)	Binder for chopped strand mats made of glass fibers. Has good affinity with resins. Provides chopped strand mats with properties such as sufficient strength and flexibility for molding.

7. Modifiers for Polymers

Product	Principal Component (Product Form)	Uses and Features
SIPM	5-Sodium sulfo dimethyl isophthalate (Powder)	SIPM and SIPE-40 are modifiers to produce polyester fibers dyeable with cationic dyes. Addition of SIPM or SIPE-40 in the polycondensation process results in production of polyester fibers that exhibit excellent affinity for cationic dyes.
SIPE-40	Ethylene glycol solution of 5-sodium sulfo bis (hydroxyethyl) isophthalate (Liquid)	