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NOTHING TAKES THE PLACE
of
GLYCERINE

- 1583 ways to use it -

GLYCERINE PRODUCERS' ASSOCIATION

This booklet has been compiled for the convenience of chemists, manufacturers, and others who may wish to investigate the possibilities of glycerine in their production problems or to study its wider applications. The list of uses is numbered continuously so as to serve as a reference in requesting information.

Inquiries about any of these uses may be sent to:

GLYCERINE PRODUCERS' ASSOCIATION
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1583 WAYS *to use* GLYCERINE

Glycerine, now in ample supply, has not only a multitude of industrial applications but also extraordinary popular appreciation. Its value in the composition of life-saving drugs and for other war uses is known from one end of the country to the other.

Glycerine for medicines, glycerine for foods and beverages, glycerine for scores of other purposes in the home is becoming more widely used each day. Manufacturers, processors and distributors who heretofore have failed to use this versatile fluid — or to emphasize its presence when it was used — now find that glycerine in their formulas is a definite asset for consumer acceptance.

CONTENTS

WHY NOTHING TAKES THE PLACE OF GLYCERINE.....	3
LISTING OF GLYCERINE USES.....	7
PART I — MATERIAL ARTS AND SCIENCES	
AIR CONDITIONING and REFRIGERATION.....	7
ADHESIVES and PASTES.....	7
AUTOMOTIVE	8
CEMENTS	8
CLEANERS and LAUNDRY AIDS.....	8
ELECTRICAL	8
EXPLOSIVES	9
GLASS, CERAMICS, ABRASIVES.....	9
LABORATORY	10
LEATHER	10
LUBRICANTS	10
METALS	11
PACKAGING MATERIALS (OTHER THAN PAPER).....	11
PAPER	12
PHOTOGRAPHY	12
PLASTICS and MOLDING COMPOSITIONS.....	13
PRINTING, LITHOGRAPHY, INKS, ETC.....	13
PROTECTIVE COATINGS (PAINTS, VARNISHES, LACQUERS, ENAMELS) ...	14
RUBBER	15
TEXTILES	15
WOOD	16
MISCELLANEOUS	16
PART II — "HUMAN" USES	
AGRICULTURE	17
BEVERAGES	18
CHIROPODY AND PODIATRY.....	18
CLEANLINESS, SANITATION and PERSONAL HYGIENE.....	18
COSMETICS and TOILET PREPARATIONS.....	18
DENTISTRY	19
DIAGNOSIS, LABORATORY and CLINICAL.....	20
DRUGS AND PHARMACEUTICALS.....	20
FOODS	23
PERFUMES	24
TOBACCO	24
VETERINARY MEDICINE.....	25
MISCELLANEOUS	25
APPENDIX — TABLES SHOWING PROPERTIES OF GLYCERINE.....	26

WHY NOTHING TAKES THE PLACE OF GLYCERINE

IN both industry and medicine glycerine plays a more comprehensive role than any other fluid except water. No one other product combines all the properties of glycerine, hence no satisfactory substitute has been found for the full range of its many applications. Its wholesomeness for human consumption makes it especially valuable in foods, drugs and cosmetics.

Removal of war restrictions has returned an increasing amount of glycerine to civilian and industrial uses. The current and indicated future production provides ample supplies for all normal and prospective new uses.

CHEMICAL PROPERTIES

The usage of glycerine in industry depends upon both chemical and physical characteristics. A trihydric alcohol with the formula $C_3H_5(OH)_3$, the structure of glycerine lends itself to numerous syntheses because of the easy reactivity of the OH groups. One example is the reaction of the OH groups with phthalic anhydride, making it useful in the production of solvents and softeners for plastics and lacquers, synthetic resins, and many of the new paint formulations.

Being a polyhydric alcohol, glycerine may be combined with any of a great number of acids to produce esters which have a variety of industrial

and commercial applications. It may also be combined with alkalis and metallic oxides to form salts with unique properties. The oldest and perhaps the best example of a chemical derivative of glycerine is nitroglycerine, which finds very extensive use in dynamite and other explosives.

Newer derivatives which may be made available in commercial quantities are the chlorohydrins, glyceryl ethers, glycerine formal and bis-formal, and many others.

PHYSICAL PROPERTIES

One of the most generally useful properties of this fluid is its power to absorb and retain moisture from the air. This makes it helpful as a humectant in processing, where moisture content must be maintained or where it is desirable to avoid excess drying.

Glycerine also possesses high solvent power. Many substances, such as iodine, bromine, tannin, alkaloids, thymol, phenol, mercuric chloride, boric acid, fixed alkalis, etc., are more soluble in glycerine than in water. Major uses based on these solvent powers include drugs, cosmetics, perfumes, flavoring extracts, printing inks, polishes, textile dyeing.

Distilled glycerine is crystal clear, very stable, and practically neutral. Having a high boiling point (290°C or 554°F), it resists evaporation. In water solution it has very low freezing points (as low as -51.11°C or -60°F). It does not turn rancid and if used in proper proportions has a definite preservative action. These preservative powers probably are due to its hygroscopic action by which it deprives the organisms of water and causes dehydration of the bacteria.

Glycerine has "body" and this, together with the fact that it prevents other products from drying and hardening when exposed to the air, fits it for many uses in lubricants. In places where oil does not give the best results glycerine is useful either by itself or as a constituent of special lubricants.

GRADES

Refined glycerine comes in four principal grades:

CHEMICALLY PURE OR U.S.P. — A high grade, water-white glycerine meeting the requirements of the United States Pharmacopoeia. Suitable for use in

foods, pharmaceuticals, cosmetics or for any purpose where the highest quality is demanded. It has a specific gravity of 1.249— 25°C./25°C.

HIGH GRAVITY — A pale yellow glycerine for industrial purposes with a specific gravity of 1.262— 15.5°C./15.5°C.

DYNAMITE — A yellow glycerine made especially for the explosives trade. It has a specific gravity of 1.262— 15.5°C./15.5°C.

YELLOW DISTILLED — A yellow glycerine for industrial purposes with a specific gravity of 1.259— 15.5°C./15.5°C.

FOR HUMAN CONSUMPTION

As a natural product, glycerine has been scientifically proved to be entirely suitable for human use, not only externally on any part of the body, but also internally. This wholesomeness is a vital consideration in connection with its use in medicines, foods and cosmetics, and in materials that come in continuing contact with foods, such as transparent wrappings.

DRUGS AND PHARMACEUTICALS

An analysis of more than 15,000 prescriptions in a single big-city area showed that, with the sole exception of water, the liquid ingredient most often called for in compounding medicines is glycerine. Of the eighty pharmaceuticals and miscellaneous ingredients revealed by that analysis, almost 20 per cent contained glycerine.

FOODS AND BEVERAGES

In commercially prepared foodstuffs and beverages the use of glycerine is steadily increasing. Experiments at the University of Chicago showed conclusively that glycerine may safely be taken into the stomach even

in large quantities. Commenting on this study, the Journal of the American Medical Association called attention to the fact that the average daily intake of fat in the present-day diet (approximately 100 Gm.) liberates about one-tenth its weight of glycerine in the alimentary tract as a consequence of natural digestive processes.

Glycerine is variously utilized in food processing to promote freshness and prevent drying out, enhance flavor, add smoothness and richness, retard crystallization, add sweetness, and act as a preservative. A long list of food patents contain glycerine as a recommended ingredient.

Since some glycerine is formed naturally during the manufacture of alcoholic liquors its use as a smoothing agent in such beverages does not mean the introduction of a foreign ingredient.

TOBACCO

The manufacture of practically all tobacco products calls for an effective humectant to retain and, where necessary, to take up moisture. The casing mixture in modern cigarette processing in almost every instance contains glycerine. The addition of a few per cent, depending on the season, has been found to render the shredded tobacco as pliable and as easily handled as tobacco leaf with its high moisture content.

Besides benefitting tobacco by keeping it soft, glycerine improves the flavor and aroma. This is due not only to its sweetening power but also to its action as a solvent and penetrating agent for many of the materials used in tobacco processing to impart flavor and aroma.

COSMETICS

The penetrating properties of glycerine, its colorless quality, and its exceptional power as a solvent make it widely useful in cosmetics and toilet preparations. Its function in absorbing and retaining moisture render it especially valuable in compounds designed to keep the skin soft and smooth and to prevent chapping and drying.

LISTING OF GLYCERINE USES

The following list covers the processes and compositions in which glycerine is a component. It is based not only upon the more widely known and established uses but also upon specialized applications shown by the technical, patent, and research literature. A single heading may refer to one use or, more generally, may signify many, often scores, of modifications, processes or uses under a single category.

The first half of the list relates to glycerine uses in the material arts and sciences and the second half to what may be termed "human" uses, that is, medicines and foods for both internal consumption and external application as well as wrappings for food and cosmetics which for the same reasons must be absolutely free from any toxic ingredient.

PART I

MATERIAL ARTS AND SCIENCES

AIR CONDITIONING and REFRIGERATION

- 1 Air drying medium
- 2 Component of certain types of coolants
- 3 Flange packings
- 4 Gas conduit liners (sealing and dust laying)
- 5 Gasket pastes
- 6 Gas sealing compositions (glue-glycerine)
- 7 Insulating cork compositions
- 8 Joint sealing compositions (e.g. glycerine-litharge)
- 9 Oil and gas resistant lubricants
- 10 Oil-proof gaskets
- 11 Preventing precipitation in calcium chloride brines
- 12 Refrigerant-noncorrosive and non-evaporating
- 13 Thermostatic regulator bulbs

ALKYDS

- 14 Protective coatings
- 15 "Stop-leak" preparations in circulating systems

ADHESIVES and PASTES

- 16 Adhesion-preventing compositions
- 17 Adhesives for glass, tin and lithographed surfaces
- 18 Adhesives for textiles, leather, paper, etc.
- 19 Bookbinding adhesives
- 20 Container sealing adhesives
- 21 Enameled and plated surfaces
- 22 Envelope adhesives
- 23 Gas- and oil-leak sealing compositions
- 24 General plasticizer for adhesives
- 25 Gummed tapes
- 26 Label adhesives
- 27 Laminating adhesives for wood, paper, cloth, etc.
- 28 Library, photographic, etc., pastes
- 29 Mucilages
- 30 Pad adhesives
- 31 Postage stamp adhesives
- 32 Restoring glue and maintaining its flexibility
- 33 Rubber-casein adhesives
- 34 Self-sealing adhesives (e.g. "Scotch" tape)

35 Silicate adhesives

ALKYDS

- 36** Bonding agents for pressed cork boards
- 37** Heat-sealing adhesives
- 38** Laminating
- 39** Laminating cellulose foil, metal foil, etc., to paper, cardboard, etc.

AUTOMOTIVE

- 40** Antifreeze solutions
- 41** Antistatic fan belt treatments
- 42** Automobile polishes and cleaners
- 43** Brake fluids
- 44** Brake linings and clutch facings
- 45** Gaskets and washers
- 46** Glass anti-mists and anti-fog compositions
- 47** Glass polishes
- 48** Leather treatments and cleaners
- 49** Lubricants for rubber shackles
- 50** Metal treatments (e.g. ball bearings, etc.)
- 51** Reinforcing inner tubes for tires
- 52** Safety glass (plasticizer for laminant)
- 53** Sealing compositions for radiator leaks
- 54** Shock absorber fluids
- 55** Solvent for "antiknock" chemicals for automobile fuels and lubricants
- 56** Special lubricants
- 57** Tire-healing compositions
- 58** Tire-preserving paints
- 59** Tire manufacture
- 60** Valve grinding compositions
- 61** Waterproofing compositions for hoods, etc.

ALKYDS

- 62** Artificial leather upholstery
- 63** Brake linings
- 64** Gaskets
- 65** Primers for nitrocellulose coatings
- 66** Protective finishes (paints)

CEMENTS

- 67** Cement coloring compositions
- 68** Gelatin cements
- 69** Glycerine-litharge cements for numerous

bonding and repair uses

- 70** Glycerine-litharge mortars
- 71** Linoleum and tile cements
- 72** Oilproof and waterproof binders
- 73** Stain-removing preparations (iron, coffee, etc.)
- 74** Tool handle cement

**CLEANERS
and LAUNDRY AIDS**

- 75** Automobile cleaners and polishes
- 76** Automobile polishes
- 77** Benzin cleaning jellies
- 78** Celluloid window cleaner
- 79** Cleaning cloths and pads
- 80** Component of transparent soaps, toilet soaps, etc.
- 81** Detergency testing mixture
- 82** Fabric marking inks
- 83** Furniture polishes
- 84** General household cleaning mixtures
- 85** Glass cleaners and polishes
- 86** Gloss starches
- 87** Glycerine derivatives in
 - 1) Detergents
 - 2) Wetting agents
 - 3) Dispersing agents
- 88** Leather polishes and cleaners
- 89** Masonry cleaners
- 90** Metal polishes
- 91** Polishing compounds for lacquered surfaces
- 92** Rug and carpet cleaners
- 93** Special detergents
- 94** Stain removers (mustard, lipstick, coffee, etc.)
- 95** Stove polishes
- 96** Straw hat cleaners
- 97** Upholstery cleaners
- 98** Watch cleaner solutions

ELECTRICAL

- 99** Anodizing aluminum (Alumnite, Tennents and other processes)
- 100** Antistatic dressings and treatments
- 101** Battery electrolytes
- 102** Carbon electrode treatments

- 103 Coloring electric bulbs
- 104 Cleaning etched electrodes
- 105 Conductive inks (with graphite)
- 106 Discharge devices
- 107 Electric bulb identifying inks (for interior of bulb)
- 108 Electrolytic condensers
- 109 Electrolytic production of iron powder
- 110 Electroplating of metals (nickel, iron, cadmium, tungsten, zinc)
- 111 Electroplating resists or stops
- 112 Electropolishing of metals (nickel, iron, German silver, stainless steel)
- 113 Enamels for electrical resistors
- 114 Flexibilizer in insulating electric wires
- 115 Fluorescent lamps (interior coatings)
- 116 Glycerine-litharge cements for setting up electrical equipment, making conductive cements, etc.
- 117 Insulating tapes
- 118 Metal stripping (nickel from steel; gold from silver)
- 119 Microporous layers on electrodes
- 120 Oxide coated cathodes of luminescent tubes
- 121 Preparing metals for use in batteries or accumulators
- 122 Retarding deterioration of oils in transformers, etc.

ALKYDS

- 123 Battery cables
- 124 Binder for luminescent discharge tubes
- 125 Bonding agent in making insulators
- 126 Electromagnetic core laminations
- 127 Flexible insulators
- 128 Insulating cambric
- 129 Insulating paints
- 130 Molded caps for discharge tubes
- 131 Plating equipment coatings
- 132 Radio parts coatings and treatments
- 133 Resistance elements
- 134 Switchboard coatings
- 135 Wire coatings
- 136 X-Ray equipment coatings

EXPLOSIVES

- 137 Dynamite
- 138 Nitroglycerine
- 139 Smokeless Powders

GLASS, CERAMICS, ABRASIVES

A. GLASS

- 140 Anti-mists and anti-fog compositions
- 141 Anti-mist pencils
- 142 Anti-shatter treatments during blasting or bombing
- 143 Cements (glycerine-litharge)
- 144 Chemical etchants (to control and localize action)
- 145 Decalcomania for ornamental effects
- 146 Fused labels and symbols
- 147 Glass inks
- 148 Glass polishes
- 149 Grinding and polishing glass, lenses, etc.
- 150 Laminant plasticizer for safety glass
- 151 Lens cleaners
- 152 Protective coatings
- 153 Sand-blast etching stencils (gelatin)
- 154 Scratch removers
- 155 Special putty, etc.
- 156 Special mirror compositions (colored mirrors)
- 157 Spray painting masks

ALKYDS

- 158 Identifying marking paints
- 159 Laminants for safety glass
- 160 Metal coated reflectors
- 161 Temporary protective coatings for polished surfaces
- 162 Vitreous decorative coatings

B. CERAMICS and CLAY PRODUCTS

- 163 Abrasive massing clays
- 164 Acoustic plaster mixes
- 165 Binder for refractories
- 166 Bonding agents (glycerine-litharge)
- 167 Ceramic inks
- 168 Decalcomania designs
- 169 Glycerine-litharge lutes
- 170 Laboratory control for mill liquor
- 171 Modeling clay
- 172 Non-oily vitreous enamels
- 173 Porous building blocks
- 174 Silk screens for designs
- 175 Special materials for bonding metal to ceramics
- 176 Suspending media in decorative work
- 177 Temporary protective coatings

178 Underglaze effects

ALKYDS

179 Vitreouslike finishes for metals, etc.

C. ABRASIVES

180 Bonding agents for abrasives

181 Grinding and polishing stones
(glycerine-litharge)

182 Massing material in manufacture of abrasive
disks and wheels

183 Plasticizer for paper or cloth carriers

184 Razor sharpening compositions

185 Suspending medium for abrasives

186 Valve grinding compositions

ALKYDS

187 Bonding medium for abrasives

LABORATORY

188 Acid-proofing corks

189 Bubble solutions for physical studies

190 Calibration of immersion refractometers

191 Chemical reagent

192 Clarifying agent

193 Comparison viscosimeters

194 Gas impervious seals

195 Gelatin models for photo-elastic analysis of
stresses

196 Glycerine-litharge cements for joining and
repairing equipment

197 Heat transfer equipment

198 Lubricant in stopper boring

199 Maintaining sub-zero temperatures

200 Microscopic mountant

201 Mounting media for specimens

202 Organic-solvent resistant lubricant for
ground glass joints

203 Pressure transmitting equipment

204 Rubber tubing softener and preservative

205 Sealing media for organic solvents

206 Special heating baths

207 Special flame tests

208 Specimen preservation

209 Suspending medium for grinding and match-
ing glass joints, etc.

210 Staining solutions for microscopy

211 Temporary seal for hydrogen

212 "Unfreezing" glass stoppers and joints

LEATHER

213 Anti-static belt dressings

214 Artificial leathers and substitutes

215 Cements and glues

216 Coatings for leather rolls

217 Dyeing and coloring compositions

218 Fat liquors

219 Fur dyes and mordants

220 Fur glosses

221 Fur skin and leather tanning

222 Harness dressings

223 Increases tensile strength and stretch

224 Inner sole compositions

225 Leather belt dressings (anti-slip)

226 Leather cleaners

227 Leather finishes and dressings

228 Leather perfuming compositions

229 Leather scrap utilization

230 Leather stuffing

231 Leather varnishes

232 Liming skins

233 Minimizes area changes due to weather

234 Patent leather softening preparations

235 Polishes

236 Preventing drying out of chrome leather

237 Process material in leather printing

238 Renovating processes

239 Saddle soaps

240 Seasoning compositions

241 Shoe cements

242 Shoe polishes and dressings

243 Softener and flexibilizer prior to dressing

244 Specific glycerine treatments (e.g. samming)

245 Supplies permanent moisture for pliability

246 Tanning compositions

247 Waterproofing dressings

ALKYDS

248 Laminating artificial leather

249 Leather finishes

LUBRICANTS

250 Anti-static lubricants for belts, etc.

251 Ball bearing lubricants

252 Bituminous dispersions

- 253 Clock mechanism lubricants
- 254 Desalting and demulsifiers for crude mineral oils
- 255 Emulsion lubricants
- 256 Explosion-proof lubricants
- 257 Fire-resistant lubricants
- 258 Food equipment lubricants
- 259 Gas meter lubricants
- 260 Gasket pastes
- 261 Gasoline pumping and processing equipment
- 262 High pressure lubricants
- 263 Lime base greases
- 264 Low temperature lubricants
- 265 Metal drawing lubricants
- 266 Molding press lubricants
- 267 Nitroglycerine explosives for starting and treating oil wells
- 268 Oil well stimulating composition
- 269 Organic solvent-resistant lubricants
- 270 Petroleum lubricants
- 271 Pipe thread lubricants
- 272 Plug valve lubricants
- 273 Purifying crude or sludged oil
- 274 Rubber lubricants
- 275 Self-lubricating bearings
- 276 Shock absorber lubricants
- 277 Soda base greases
- 278 Special lubricant with bentonite
- 279 Special purpose oils and lubricants
- 280 Strongly adherent greases
- 281 Sweetening petroleum distillates
- 282 Synthetic resin bearings
- 283 Well drilling fluids and muds
- 284 With graphite: in rubber lubricants, compressors, aircraft oxygen equipment

ALKYDS

- 285 Lubricating compounds
- 286 Petroleum equipment coatings

METALS

- 287 Amalgam-electroplating (iron with precious metal)
- 288 Anodizing (coloring) aluminums
- 289 Anti-corrosion compositions
- 290 Casting molds
- 291 Cleansing prior to painting, plating or enameling
- 292 Cold drawing lubricants
- 293 Cutting oils and cutting oil emulsifiers

- 294 Derivatives; in ore flotation preparations
- 295 De-rusting compositions
- 296 Electrolytic preparation of metals (iron, lead) from metallic salts
- 297 Electroplating, polishing and stripping
- 298 Galvanizing
- 299 Glycerine-litharge for filling indentations
- 300 Glycerine-litharge mountants in metallurgical examination
- 301 In etchants and compositions for micro-examination of metals and alloys
- 302 Ink for brass
- 303 Marking crayons for hot metal surfaces
- 304 Metals for use in batteries
- 305 Metal lacquers
- 306 Metal polishes
- 307 Nickel "plating" pastes
- 308 Protecting metals after pickling
- 309 Quenching medium for aluminum alloys
- 310 Sand mold binders
- 311 Stainless steel cleaners and polishes
- 312 Self-lubricating bearings
- 313 Steel-softening solutions
- 314 Soldering fluids and fluxes
- 315 Soldering pastes
- 316 Valve grinding compositions
- 317 Welding electrodes

ALKYDS

- 318 Anti-corrosion paints
- 319 Anti-tarnish coatings for silver and brass
- 320 Baked foundry cores
- 321 Coatings to prevent weld spatter adhesion
- 322 Mold binders
- 323 Protective coatings

PACKAGING MATERIALS (OTHER THAN PAPER)

- 324 Bottle sealing compositions (dip type)
- 325 Cellophane
- 326 Cellophane adhesives
- 327 Closure and label adhesives
- 328 Containers for oil (spiral chipboard, special laminated or otherwise treated paper)
- 329 Cork crown liners
- 330 Fiber containers (in laminants and adhesives)
- 331 Fiber cords and bands
- 332 Gas-proof wrappings
- 333 Pellicles, bands and seals for bottles and jars
- 334 Plasticizer for composition liners

- 335 Rubber sealing rings
- 336 Sealing compositions
- 337 Transparent wrappings
- 338 Treating corks for wine bottles
- 339 Wrappings for frozen foods

ALKYDS

- 340 Closures and metal ends of fiber containers
- 341 Waterproofing cellulosic films and sheets

PAPER

- 342 Acid-resistant papers
- 343 Anti-curl and anti-"dish" treatments
- 344 Bleaches
- 345 Bodying agent
- 346 Cloth-like papers
- 347 Cigarette papers (special)
- 348 Decalcomania papers
- 349 De-inking waste paper
- 350 Duplicating papers
- 351 Fireproofing papers
- 352 Flexibilizer
- 353 Glycerine-litharge cements for setting tile in digestors, sulfite liquor tanks, etc.
- 354 Greaseproof papers
- 355 High gloss finishes and varnishes
- 356 High wet strength paper
- 357 Isolation of cellulosic substances in ligneous raw materials
- 358 Laminated paper and boards
- 359 Marbled paper
- 360 Meat casings
- 361 Moistureproof papers
- 362 Oil impermeable paper and paper board
- 363 Paper gaskets
- 364 Paper testers (Mullens burst tester)
- 365 Paper testing reagents and stains
- 366 Parchment papers
- 367 Pest-resistant papers
- 368 Plasticizer and softener
- 369 Plasticizer in waxed, glassine, etc., papers
- 370 Plasticizing silicate coatings
- 371 Pulping processes
- 372 Pulp testing equipment
- 373 Rubber coatings
- 374 Shrinkage retarding
- 375 Sizing compositions
- 376 Special food-wrapping papers
- 377 Special finishes and coatings
- 378 Sterilizer

- 379 Temperature control of cooking liquors
- 380 Towelling, napkins, tissues (as softener)

ALKYDS

- 381 Bank note papers
- 382 Beater sizes (water-soluble alkyds)
- 383 Coatings for paper, paper board, etc.
- 384 Creped papers
- 385 Filter papers
- 386 Glaze finishes
- 387 Greaseproofing finishes
- 388 High wet strength papers
- 389 Interiors of gasoline and water drums
- 390 Laminating compositions
- 391 Paper varnishes
- 392 Polishing papers
- 393 Sizing and impregnating compositions
- 394 Waterproof finishes
- 395 Water-resistant polishing papers

PHOTOGRAPHY

- 396 Anti-curling treatments for photos
- 397 "Anti-dazzle" coatings and coverings for photoflash bulbs
- 398 Anti-dermatitis (e.g. metol) ointments
- 399 Anti-halation treatments
- 400 Anti-dust measures for camera interiors
- 401 Bichromate processes
- 402 Color photography emulsions
- 403 Creating special distortion effects
- 404 Diazotype films
- 405 Eliminate air bells on film during developing
- 406 Eliminate "Newton rings" in plate holders
- 407 Emulsion layer supporting materials
- 408 Film cabinet humidifier
- 409 Fine focusing work (transparentizing ground glass)
- 410 Formalin hardening baths (motion picture film)
- 411 Gelatin emulsions carrying sensitizing materials
- 412 Gelatin stripping from glass plates
- 413 "Glycerine process" for developing platino-type prints
- 414 "High-light" effects
- 415 Improver for deteriorated negatives to create hard, sharp effects
- 416 Infra-red photography coatings for flash bulbs

- 417 Kodachrome processing and developing
- 418 Local development on bromide papers
- 419 Masking pastes
- 420 Motion picture threading lubricant
- 421 Mounting pastes
- 422 Photographic papers
- 423 Photogravure
- 424 Photo plate-sinking
- 425 Photoprinting on glass
- 426 Pitting prevention in drying
- 427 Platinum print papers
- 428 Preserver in pyro developers
- 429 Preventing ripples and cracking
- 430 Print varnishes
- 431 Projection screens
- 432 Rapid drying procedures
- 433 Repairing developer trays (glycerine-litharge)
- 434 Restrainer in ferrous oxalate developer
- 435 Speeding up plate and enlarger printing
- 436 Stain removers
- 437 "Stay flat" formulas
- 438 "Sticky-Back" holders
- 439 "Touch up" compositions
- 440 Transparent adhesives
- 441 "Visible enlargement" process

ALKYDS

- 442 Carriers in "self developable" films
- 443 Color photography
- 444 Emulsion carriers
- 445 Film supports

PLASTICS and MOLDING COMPOSITIONS

- 446 Casein plastics plasticizer
- 447 Glue compositions for molding purposes
- 448 Heating medium for forming and shaping acrylic plastics (for bomber noses, gun blisters, etc.)
- 449 Imparting opalescence or opacity to molded phenolic products
- 450 Lubricant for slicing plastics
- 451 Massing material for horn meal molding mixtures
- 452 Melamine molding compositions
- 453 Melamine resin-wood flour combinations
- 454 Mold lubricant
- 455 Plaster cast molds
- 456 "Plastic" wood or wood doughs
- 457 Plasticizer for regenerated cellulose, etc.

- 458 Plasticizer for soybean protein plastics
- 459 Sound record compositions

ALKYDS

- 460 Asbestos-filled molding compositions (with other resins)
- 461 Binders in molding mixtures
- 462 Brake linings
- 463 Clear and colorless cast products (with phenol-formaldehyde compositions)
- 464 Cores for metal molding
- 465 Gaskets
- 466 Linoleum
- 467 Mica bonding for insulation
- 468 Printing rollers

PRINTING, LITHOGRAPHY, INKS, ETC.

- 469 Adhesion promoter for printing on glossy paper
- 470 Anti-oxidant
- 471 Carbon and other duplicating papers
- 472 Collotype printing processes
- 473 Conditioning printing rollers
- 474 Conductive inks
- 475 Decalcomania compositions
- 476 Design transfer solutions
- 477 Drawing inks
- 478 Duplicator inks
- 479 Embossing inks
- 480 Facilitating paper handling during printing (fingers wet with glycerine)
- 481 Fingerprint inks
- 482 Food-marking inks
- 483 Fraud detector inks
- 484 General hygroscopic agent
- 485 Hectograph inks
- 486 Hectograph pads and compositions
- 487 Indelible inks
- 488 Ink tablets
- 489 Instrument inks (for recording apparatus)
- 490 Lithographic inks and varnishes
- 491 Lumber-marking inks
- 492 Maintaining requisite humidity in printing plants
- 493 Marking inks
- 494 Manifold sheets
- 495 Mercurographic tusches
- 496 Multigraph inks
- 497 Offset preventer
- 498 Opacity promoter

- 499 Pencil leads
- 500 Photo-engraved intaglio plates
- 501 Plate-etching compositions
- 502 Printers' blankets
- 503 Printing inks
- 504 Printers' rollers (glue-glycerine type)
- 505 Protecting litho plates during storage
- 506 Reducing agent
- 507 Restoring charred documents
- 508 Restoring old and dried inks
- 509 Restrainer in quick-drying inks
- 510 Secret-writing detection
- 511 Sensitized printing plates
- 512 Silk screen printing
- 513 Show card inks
- 514 Spreading agent
- 515 Stamp pad inks
- 516 Static elimination during printing
- 517 Stencil inks
- 518 Sterilizer to prevent mold formation
- 519 "Sympathetic" inks (invisible inks)
- 520 Thickener
- 521 Toner
- 522 Transfer papers in lithography
- 523 Transference foils
- 524 Typewriter ribbons and inks
- 525 Writing inks

ALKYDS

- 526 Drawing utensils
- 527 Fortifying agents in litho varnishes and inks
- 528 Gloss inks
- 529 Gloss overprint varnishes
- 530 Half-tone blacks and process inks
- 531 Non-scratch inks
- 532 Printing and lithographic inks for metals, etc.
- 533 Printing inks
- 534 Printers' rollers
- 535 White-writing boards (for classrooms, etc.)

PROTECTIVE COATINGS (PAINTS, VARNISHES, LACQUERS and ENAMELS)

- 536 "Aquarell" colors (water-soluble)
- 537 Body finishing resin
- 538 De-icing coatings for airplane surfaces
- 539 Esterification of lignin liquors for use in protective coatings
- 540 Ester gum
- 541 Metal lacquers (simple gum solutions)
- 542 Oil-lac (shellac) varnishes

- 543 Paint hardener
- 544 Removing moisture from paint spray compressed air lines
- 545 Rubbing varnish resin
- 546 Shellac dispersions (aqueous)
- 547 Softener in artists' colors
- 548 Starting material in manufacture of alkyd resins and ester gums
- 549 Synthetic "drying" oils to replace tung oil, etc.
- 550 White carbonate rosin

ALKYDS

- 551 Aircraft decalcomania
- 552 Airplane coatings
- 553 Architectural finishes
- 554 Automobile paints and finishes
- 555 Baked finishes — enamels
- 556 Baked finishes for spray applications
- 557 Baking primers
- 558 Bond coats in metal decorating
- 559 Bridge paints
- 560 Camouflage paints
- 561 Coatings on leather, cloth, paper, rubber, composition board, etc.
- 562 Dye-resistant coatings for textile coloring supports
- 563 Enamels (gloss, semi-gloss, lusterless)
- 564 Engine finishes
- 565 Flexible rubber lacquers
- 566 Fortifying interior house paints
- 567 Furniture lacquers and varnishes
- 568 Fungus-resistant paints
- 569 Hardware finishes
- 570 Heat-resistant insulating varnishes
- 571 Industrial finishes
- 572 Machine finishes
- 573 Maintenance paints
- 574 Marine finishes (interior and exterior)
- 575 Modifiers for other synthetic resins (e.g. ureas)
- 576 Nitrocellulose and lacquer sealers
- 577 Nitrocellulose lacquer plasticizers
- 578 Numeral and process colors
- 579 Outdoor wood finishes
- 580 Paints for preventing ice formation
- 581 Paints for toys
- 582 Primer grounds for repainting
- 583 Primers, undercoats and finishes for metals
- 584 Pump enamels
- 585 Railroad and freight car finishes
- 586 Refrigerator, etc., enamels
- 587 Road-marker enamels
- 588 Roller coatings
- 589 Roof and barn paints

- 590 Rust-inhibiting primers
- 591 Shingle stains
- 592 Sign finishes
- 593 Simulated hammered metal finishes
- 594 Spar varnishes
- 595 Steel furniture enamels
- 596 Tank and gun finishes
- 597 Truck enamels
- 598 Two-tone finish
- 599 Urea formaldehyde-alkyd combinations
- 600 Varnishes
- 601 Vehicles for aluminum powders
- 602 Wood sealers
- 603 Wrinkle finishes

ALKYD RESIN EMULSIONS

- 604 Exterior paints (for cinderblock, brick, concrete, stucco, masonry, etc.)
- 605 Interior wall paints (homes, apartments, etc.)
- 606 Shellac substitutes

ESTER GUMS

- 607 Greaseproof baking enamels
- 608 Nitrocellulose lacquers
- 609 Varnishes (e.g. "spar" varnishes)

RUBBER

- 610 Air bag treatments and coatings to prevent adhesion, sulfur migration and ageing
- 611 Anti-drying agent
- 612 Anti-skid compositions and treatments
- 613 Bicycle tire fillers
- 614 Centers for golf balls
- 615 Composition for reinforcing tire tubes
- 616 Compositions for separating tacky rubber sheets or parts
- 617 Conditioning agent
- 618 Derivatives employed as anti-oxidants
- 619 Devulcanizers
- 620 Electrodeposition of rubber from latex
- 621 Formulation of "artificial" rubbers
- 622 "Gum" erasers
- 623 Increasing oil resistance of rubber
- 624 Latex preservatives
- 625 Latex sealing composition for containers
- 626 Lubricants
- 627 Medium for ultra-rapid vulcanization at high temperatures and pressures
- 628 Mixes for vulcanizing rubber

- 629 Mold lubricants and anti-stick compositions
- 630 Polyvinyl alcohol plasticizer (substitute)
- 631 Protective coatings and paints
- 632 Reducing electrostatic properties
- 633 Renovating rubber goods
- 634 Rubber and latex threads (as flexibilizer)
- 635 Rubber-containing adhesives
- 636 Rubber dispersions for coating and impregnating
- 637 Rubber-marking ink
- 638 Rubber preservatives
- 639 Rubber thread formation
- 640 Softener and flexibilizer
- 641 Tire-sealing compositions
- 642 Treating tire cords
- 643 Vulcanizing accelerator assistant

ALKYDS

- 644 Anti-scorch agents
- 645 Artificial rubber
- 646 Gas tight coatings
- 647 In rubber dollies of dry cells
- 648 Oil resistant coatings for rubber surfaces (e.g. hoses, oil line gaskets)
- 649 Protective coatings
- 650 Rubber and latex extenders (for both natural and synthetic)
- 651 Tire retreading
- 652 Water and gas impermeable coatings

TEXTILES

- 653 Anti-mold and anti-rot compositions
- 654 Anti-shrinkage treatments for wool
- 655 Asbestos cloth substitutes
- 656 Bast fiber treatments
- 657 Bleaching natural straws
- 658 Bleaching processes
- 659 Color lakes (e.g. titanium)
- 660 Crease-resistant finishes
- 661 Degumming silk
- 662 Dyeing compositions (dye solvent)
- 663 Dyeing natural straws and fibers
- 664 Ester gums for increased body, fullness and stiffness
- 665 Fabric-marking and identifying inks
- 666 Fabric-weighting compositions
- 667 Felt manufacture
- 668 Fire-proofing treatments
- 669 Gas-proofing treatment
- 670 Giving viscose a woolly character

- 671 Glycerinated feathers for millinery
- 672 Imparting soft handle to wool, etc.
- 673 Increasing snag and pull resistance
- 674 Increasing wearability
- 675 In manufacture of fibers from milk
- 676 In manufacture of rayon and other cellulosic fibers
- 677 Laboratory aid in study and identification of fibers and fabrics
- 678 Mercerizing lyes
- 679 Pigment dispersions
- 680 Plasticizer for pyroxylin finishes
- 681 Preservative and antiseptic
- 682 Printing imitation fur effects
- 683 Printing pastes
- 684 Printing resists
- 685 Process material and starting point in making various dyestuffs, leveling and stripping assistants, etc.
- 686 Rayon de-lustring
- 687 Rubberized fabrics
- 688 Screen printing
- 689 Sizing compositions
- 690 Softening treatments for artificial fibers
- 691 Softening treatments for straws and fibers
- 692 Softening treatments for silk
- 693 Solvent-proofing treatments
- 694 Soybean protein fibers (as flexibilizer)
- 695 Spray dyeing silk and rayon
- 696 Steaming and ageing treatments
- 697 Tailor's chalk
- 698 Textile adhesives (for uniting cloth plies)
- 699 Textile detergent, wetting and emulsifying agents
- 700 Textile finishes
- 701 Textile oils and lubricants
- 702 Thickening agents for printing pastes
- 703 Vat dyeing
- 704 Waterproofing treatments
- 705 Wool substitutes

ALKYDS

- 706 Binders for pigments
- 707 Bonding cloth plies (for making semi-stiff collars, etc.)
- 708 Chintz effects
- 709 Coated cloth for pump diaphragms, etc.
- 710 Coating dye supports
- 711 Dyeing compositions
- 712 Gasproofed fabrics
- 713 Insulating cambric
- 714 Linoleum-like floor and wall coverings
- 715 Non-slip finishes on rayon
- 716 "Oiled Silk" substitute for bandages
- 717 Plasticizer for other plastic coating materials

- 718 Printing pastes
- 719 Rubber coatings and impregnations
- 720 Sizings
- 721 Special finishes
- 722 Special treatments for sheer fibers (as in rayon or silk stockings) to prevent snags and pulled threads
- 723 Textile varnishes
- 724 Transparent and impermeable coatings
- 725 Wash-resistant glaze finishes
- 726 Waterproofing fabrics
- 727 Weather-resistant netting

WOOD

- 728 Anti-termite treatments
- 729 Bleaching wood
- 730 Coating to prevent adhesion of ice
- 731 Cork substitutes
- 732 Glues and other adhesives
- 733 Imparting special grain effects
- 734 Improving pliability of wood in barrel making, etc.
- 735 Molding compositions for decorative work
- 736 Paints for marking wooden containers
- 737 Paints, varnishes, lacquers, etc.
- 738 Plasticizing veneers for decorative purposes
- 739 "Plastic wood" for repair work
- 740 Preservative compositions
- 741 Preserving decorative foliage (indoor uses)
- 742 Renovating treatments
- 743 Rot-preventing preparations
- 744 Veneer-patching adhesive
- 745 Veneer sizes
- 746 Waterproofing compositions
- 747 Wood-laminating adhesives (Plywood)

MISCELLANEOUS

- 748 Airplane de-icing mechanisms
- 749 Alkyd binders for nonhygroscopic, water-proof matches
- 750 Anti-freeze in gas meters
- 751 Automatic gas monitors
- 752 Automatic helmsman for yachts and small ships

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| 753 Bituminous road dressings | 774 Non-freezing fire extinguishers |
| 754 Boiler scale retarders and removers | 775 Non-slip compositions for rugs and carpets |
| 755 Bright flame lamp oil | 776 Outdoor sprinkler systems (to prevent freezing during winter) |
| 756 Catgut and tennis string preservative | 777 Phonographic disk-cutting machinery |
| 757 Cellophane capes for making protective clothing for workers (also gas-proof capes for soldiers) | 778 Plaster compositions (for construction) |
| 758 Dehydration of natural gases | 779 Poison gas-detecting solutions (bromine and chlorine) |
| 759 Doll manufacture | 780 Preserving book bindings (leather) |
| 760 Door-closure control fluids | 781 Pressure regulators on boilers (compensator) |
| 761 Emulsifying agents | 782 Producing anhydrous alcohol |
| 762 Filler for wells of mercury-in-glass thermometers | 783 Pump packings |
| 763 Gas mask canister compositions | 784 Recoil absorption in stamping machines |
| 764 Glossy plaster-cement mixes | 785 Roofing mastic (bituminous bases, to prolong setting time) |
| 765 Gun recoil mechanisms | 786 Sealing orifice meters to prevent freezing |
| 766 Hydraulic machinery | 787 Ships' steering gear |
| 767 Ice-simulating compositions | 788 Softening sponges |
| 768 Jute packings | 789 Stable foams for preventing evaporation of gasoline in storage tanks |
| 769 Linoleum manufacture | 790 Starting point in manufacture of numerous chemical derivatives |
| 770 Luminous crayons | 791 Suction-cup aid |
| 771 Manometer seal pots in oil cracking equipment (winter) | 792 Wall sizings |
| 772 Manufacture of matches | 793 Wax substitutes |
| 773 Maritime and aeronautical compasses | |

PART II

"HUMAN" USES

AGRICULTURE

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|--|---|
| 794 Animal protection against poison gas | 809 Insecticidal sprays and mists |
| 795 Ant poisons | 810 Insecticidal white washes |
| 796 Anti-"fly-strike" compositions | 811 Insect poison fluids (for cracks, etc.) |
| 797 Antifreeze plant sprays | 812 Nicotine fumigants for greenhouses |
| 798 Canker treatment for plants and trees | 813 Packing material for plant shipping |
| 799 Caulterizing cut seed potato | 814 Parasiticial sprays |
| 800 Cod liver oil emulsions for cattle | 815 Pest baits and poisons |
| 801 Colchicine plant treatments | 816 Plant growth stimulants |
| 802 Conditioning agent for plant leaves | 817 Potato rot control |
| 803 Egg-marking inks | 818 Poultry perch insecticide |
| 804 Fertilizers | 819 Protective compounds for nursery stock |
| 805 Fire blight treatments for trees | 820 Red spider spray (alkyd) |
| 806 Flypapers (sticky and poison types) | 821 Rodent repellents |
| 807 Freshener for indoor plants | 822 Seed disinfectants |
| 808 Glossing feathers and furs for prize animals | 823 Seedling shipping |
| | 824 Seed treatments (e.g. stimulation) |
| | 825 Sheep and other dips |
| | 826 Soil-less growing processes |
| | 827 Spray control |
| | 828 Tree protective against rabbits, etc. |
| | 829 Tree wound treatments |
| | 830 Veterinary remedies |

BEVERAGES

- 831 After-fermentation suppressor for wines
- 832 Artificial flavor bases and essences
- 833 Brewing products sweetener, clarifying and maturing agent
- 834 Coloring compositions
- 835 Diabetic lemonade, etc.
- 836 Flavoring emulsions, bases, etc.
- 837 Flavoring extracts
- 838 Flavoring syrups
- 839 Foam extracts
- 840 Fountain syrups
- 841 Holland gin
- 842 Liqueur formulation
- 843 "Mineralizing" beverages with glycono-phosphates
- 844 Mixed drink smoothing agent
- 845 Natural component of wines
- 846 Non-alcoholic flavoring extracts
- 847 "Pick-me-up" bitters
- 848 Scotch whiskey base flavor
- 849 Soft drink manufacture
- 850 Soluble coffee extracts
- 851 Sterilizing agent for wines
- 852 Triacetin (derivative) as flavor solvent and fixative
- 853 Vanilla extracts
- 854 Whiskey blending and "smoothing"
- 855 Wine analysis
- 856 Wine clarification and improvement

CHIROPODY and PODIATRY

- 857 Adhesive tapes and plasters
- 858 Anti-perspirants
- 859 Anti-pruritics
- 860 Antiseptics
- 861 Bunion paints
- 862 Chiropodists' pastes
- 863 Collodion preparations (e.g. Kelly's paint)
- 864 Corn and callus pads and rings
- 865 Corn and callus ointments and gels
- 866 Corn caustics
- 867 Cuticle softeners
- 868 Deodorants

- 869 Foot creams and ointments
- 870 Frost bite remedies
- 871 Fungicidal ("Athlete's Foot") products
- 872 Glycerine gelatine films and coatings
- 873 Glycerite of tannic acid
- 874 Lotion of camphor and chloral
- 875 Massaging preparations
- 876 Nail bleaches
- 877 Nail softening compounds
- 878 Ointment bases
- 879 Protective ointments
- 880 Soothing lotions

CLEANLINESS, SANITATION and PERSONAL HYGIENE

- 881 Abrasive soaps (industrial hand cleansers)
- 882 Bath fluids
- 883 Bath salts
- 884 Cleaning pads (cosmetic)
- 885 Dentifrices (pastes and liquids)
- 886 Disinfectants
- 887 Douches
- 888 Foam or bubble baths
- 889 Hand cleaners
- 890 Insecticides
- 891 Liquid soaps
- 892 Mouth washes and gargles
- 893 Nit-destroying lotion
- 894 Shampoos
- 895 Shaving preparations
- 896 Skin protectives
- 897 Soaps
- 898 Stain, lacquer, etc., removers (from skin)
- 899 Synthetic detergents
- 900 Toilet deodorants
- 901 Transparent glycerine soaps
- 902 "Waterless" cleansers
- 903 Water softener

COSMETICS and TOILET PREPARATIONS

- 904 Acid creams
- 905 Acne creams
- 906 After-shave lotions
- 907 "All-purpose" creams

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| 908 | Almond creams | 963 | Liquid powders |
| 909 | Alum pencils | 964 | Liquid rouges |
| 910 | Astringent creams | 965 | Lubricating creams |
| 911 | Astringent lotions | 966 | Machineless permanent waves |
| 912 | Bath fluids | 967 | Manicure preparations |
| 913 | Bath salts | 968 | Mascaras |
| 914 | Bay rum | 969 | Massage creams |
| 915 | Beard softeners | 970 | Matt creams |
| 916 | Beauty milks | 971 | Mustache wax |
| 917 | Bleaching creams | 972 | Nail bleaches |
| 918 | Blemish-covering compositions | 973 | Nail creams |
| 919 | Brilliantines | 974 | Nail enamel |
| 920 | Bubble baths | 975 | Nail polish remover pads |
| 921 | "Bust developers" | 976 | Nail polish removers |
| 922 | Cake powders | 977 | Nail white |
| 923 | Chap-relieving compounds | 978 | Non-alcoholic lotions |
| 924 | Cleansing creams | 979 | Permanent wave lotions |
| 925 | Cleansing lotions | 980 | Pomades |
| 926 | Cleansing pads | 981 | Powder bases |
| 927 | Cold creams | 982 | Powder creams |
| 928 | Concentrated cosmetic creams | 983 | Scalp ointments and lotions |
| 929 | Corrective cosmetics (e.g. blackheads) | 984 | Shampoos |
| 930 | Cosmetic emulsifiers | 985 | Shaving creams (lathering and brushless types) |
| 931 | Cosmetic stockings | 986 | Shaving sticks |
| 932 | Cream colognes | 987 | Skin protectives |
| 933 | Cream rouges | 988 | Skin reconditioners |
| 934 | Cuticle remover | 989 | Skin toners and "tonics" |
| 935 | Cuticle softener | 990 | Soapless shampoos |
| 936 | Depilatories | 991 | "Solidified" glycerine |
| 937 | Deodorant liquids, pastes and creams | 992 | Suntan preparations |
| 938 | Electric shaver lotions | 993 | Suntan simulating preparations |
| 939 | Eyebrow liquid colors | 994 | Toothpastes and liquid dentifrices |
| 940 | Facial masks | 995 | Vanishing creams |
| 941 | Foundation creams | 996 | Vitamin-containing cosmetics |
| 942 | Freckle creams | 997 | Wrinkle creams |
| 943 | Glycerine creams and gels | | |
| 944 | Greaseless lip rouge sticks | | |
| 945 | Hair dyeing compositions | | |
| 946 | Hair dye remover | | |
| 947 | Hair lacquers; hair pomades | | |
| 948 | Hair "restorers" | | |
| 949 | Hair setting jellies | | |
| 950 | Hair tonics | | |
| 951 | Hair waving fluids | | |
| 952 | Hand creams | | |
| 953 | Hand lotions | | |
| 954 | Hormone creams | | |
| 955 | Hypo-allergic cosmetics | | |
| 956 | Insect repellants (creams and lotions) | | |
| 957 | Kinky hair dressings | | |
| 958 | Lanette wax-containing cosmetics | | |
| 959 | Lecithin creams | | |
| 960 | Lemon juice cosmetics | | |
| 961 | Lip jellies | | |
| 962 | Liquid creams | | |

DENTISTRY

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|------|---|
| 998 | Abrasive polishes |
| 999 | Antiseptic solutions |
| 1000 | Artificial denture materials (alkyds and other materials) |
| 1001 | Astringents |
| 1002 | Bleaching teeth |
| 1003 | Copper tempering |
| 1004 | Correctives |
| 1005 | Counter-irritants |
| 1006 | Crown and plate swager compounds |
| 1007 | Dental pharyngitis preparations |

- 1008 Dentifrices, liquid
- 1009 Dental pulp devitalizing compounds
- 1010 Dental pulp digestants
- 1011 Denture irritation soothing agent
- 1012 Denture polishes
- 1013 Desensitizing dentin (fluoride treatment)
- 1014 Disclosing solutions
- 1015 "Dry socket" treatments
- 1016 Duplicating molds
- 1017 Enamel protective solutions (during orthodontic treatment)
- 1018 Facial casts
- 1019 Facial defect restoring compositions
- 1020 Fetid breath products
- 1021 Foil substitute in dental plate curing
- 1022 Gingivitis-treating preparations
- 1023 Gum paints in tooth infections
- 1024 Hand creams for dentists
- 1025 Impression materials
- 1026 Instrument sterilizing solution
- 1027 Instrument lubricant
- 1028 Massage fluids for gums
- 1029 Mold lubricants
- 1030 "Moldine" and other plastic clays
- 1031 Molding press lubricants
- 1032 Molding sands
- 1033 Mouth washes
- 1034 Novocaine dermatitis lotions
- 1035 Operative antiseptics
- 1036 Oral medication solvent and vehicle
- 1037 Pain relievers (e.g. from "dry socket")
- 1038 Post-operative care products
- 1039 Pre-injection mucous membrane cleaners
- 1040 Prophylaxis pastes
- 1041 Prosthetic compositions
- 1042 Protectives for skin and mucous membranes
- 1043 Pulp mummifying pastes
- 1044 Pyorrhea treatments
- 1045 Resin prosthetic materials (alkyd resins)
- 1046 Rinsing solutions
- 1047 Root canal filling materials
- 1048 Root canal sealers
- 1049 Rubber items conservation
- 1050 Stomatitis-treating compositions
- 1051 Styptics
- 1052 Styptic cotton
- 1053 Sulfonamide treatments
- 1054 Teeth removal from vulcanite dentures
- 1055 Toothache drops
- 1056 Toothpastes
- 1057 Tooth soaps
- 1058 Tongue treating compositions (e.g. for glossitis)
- 1059 Vincent's angina treatment
- 1060 Vulcanizing medium in making prosthetics

DIAGNOSIS, LABORATORY and CLINICAL

- 1061 Allergy diagnostic extracts
- 1062 Bacteriological culture media
- 1063 Bacterial specimen shipment
- 1064 Blood count diluting fluid
- 1065 Blood film stains
- 1066 Blood urea determination
- 1067 Diagnostic test for smallpox
- 1068 Differential staining
- 1069 Dust deposit surveys (re air contamination)
- 1070 Electrocardiography jellies
- 1071 Glucose determinations
- 1072 Histological preparations
- 1073 Imbedding materials
- 1074 Instrument recording inks (basal metabolism, etc.)
- 1075 Laboratory reagent
- 1076 "Match" test
- 1077 Mounting medium for microscopy
- 1078 Patch tests
- 1079 Pollen counting and surveying
- 1080 Serum preservation (for Wasserman test)
- 1081 Skin scratch tests in allergy
- 1082 Specimen clarification
- 1083 Specimen preservation
- 1084 Sputum concentration
- 1085 Staining solutions for microscopy
- 1086 Tellurite test for diphtheria
- 1087 Tuberculins

DRUGS and PHARMACEUTICALS

(Medical and Health-Conserving Uses)
(Note: The following are given in the order
of their appearance in the U.S.P. XII and
N.F. VII)

U. S. PHARMACOPOEIA, XII PREPARATIONS

- 1088 Elixir of Phenobarbital
- 1089 Extract of Malt
- 1090 Fluid Extracts, Process B
- 1091 Glycerinated Gelatin
- 1092 Glycerite of Tannic Acid
- 1093 Glycerite of Starch
- 1094 Glycerite of Boroglycerine

- 1095 Glyceryl triacetate (Triacetin)
- 1096 Liquor Chloroazodin
- 1097 Mucilage of Tragacanth
- 1098 Pills of Ferrous Carbonate
- 1099 Medicinal Soft Soap
- 1100 Liniment of Soft Soap (Tincture of Green Soap)
- 1101 Spirit of Glyceryl Trinitrate
- 1102 Glycerine Suppositories
- 1103 Syrup of Ipecac
- 1104 Syrup of Wild Cherry
- 1105 Glyceryl Trinitrate Tablets
- 1106 Compound Tincture of Cardamom
- 1107 Compound Tincture of Gentian
- 1108 Aromatic Tincture of Rhubarb
- 1109 Old Tuberculin (Tuberculin-Koch)
- 1110 Tannic Acid Ointment
- 1111 Iodine Ointment
- 1112 Smallpox Vaccine

NATIONAL FORMULARY VII PREPARATIONS

- 1113 Calcium Glycerophosphate
- 1114 Elixir Aminopyrine
- 1115 Elixir of Barbitol
- 1116 Elixir of Bismuth
- 1117 Elixir of Calcium and Sodium
- 1118 Glycerophosphates
- 1119 Compound Elixir of Euphorbia
- 1120 Elixir of Iron, Quinine and Strychnine
- 1121 Elixir of Iron, Quinine and Strychnine Phosphates
- 1122 Elixir of Gentian
- 1123 Elixir of Gentian and Iron
- 1124 Glycerinated Elixir of Gentian
- 1125 Compound Elixir of Glycerophosphates
- 1126 Elixir of Guarana and Celery
- 1127 Elixir of Hydrangea and Lithium
- 1128 Low-Alcohol Elixir
- 1129 High-Alcohol Elixir
- 1130 Elixir of Pepsin
- 1131 Elixir of Pepsin, Bismuth and Strychnine
- 1132 Compound Elixir of Pepsin
- 1133 Elixir of Pepsin and Bismuth
- 1134 Elixir of Pepsin and Rennin
- 1135 Elixir of Phosphorus
- 1136 Compound Elixir of Serenoa and
- 1137 Sandalwood
- 1138 Compound Elixir of Taraxacum
- 1139 Elixir of Terpin Hydrate
- 1140 Elixir of Terpin Hydrate and Codeine
- 1141 Compound Elixir of Vanillin
- 1142 Compound Elixir of Viburnum Opulus
- 1143 Elixir of Viburnum Prunifolium
- 1144 Ferric Glycerophosphate

- 1145 Fluidextracts, Process B
- 1146 Fluidextract of Castanea
- 1147 Fluidextract of Hamamelis Leaf
- 1148 Fluidextract of Krameria
- 1149 Fluidextract of Wild Cherry
- 1150 Fluidextract of Rose
- 1151 Compound Fluidextract of Sarsaparilla
- 1152 Fluidextract of Taraxacum
- 1153 Fluid Glycerates
- 1154 Gargle of Potassium Chlorate with Iron
- 1155 Jelly of Ephedrine Sulfate
- 1156 Glycerite of Bismuth
- 1157 Glycerite of Iodine and Zinc Iodide
- 1158 Glycerite of Egg Yolk
- 1159 Glycerite of Phenol
- 1160 Glycerite of Tragacanth
- 1161 Glycerogelatines
- 1162 Solution of Carmine
- 1163 Solution of Cochineal
- 1164 Solution of Iron and Ammonium Acetate
- 1165 Solution of Peptonized Iron
- 1166 Solution of Peptonized Iron and
- 1167 Manganese
- 1168 Phenolated Solution of Iodine
- 1169 Solution of Nux Vomica Alkaloids
- 1170 Compound Solution of Sodium Borate
- 1171 Solution of Sodium Phosphate
- 1172 Calamine Lotion
- 1173 Phenolated Lotion of Calamine
- 1174 Manganese Glycerophosphate
- 1175 Mass of Mercury
- 1176 Honey of Rose and Sodium Borate
- 1177 Compound Mixture of Opium and
- 1178 Glycyrrhiza
- 1179 Mixture of Rhubarb and Soda
- 1180 Pectin Paste
- 1181 Thin Pectin Paste
- 1182 Pills of Aloe and Mastic
- 1183 Sodium Glycerophosphate
- 1184 Suppositories of Boroglycerine
- 1185 Syrup of Althea
- 1186 Syrup of Ammonium Hypophosphite
- 1187 Syrup of Calcium Lactophosphate
- 1188 Syrup of Hypophosphites
- 1189 Compound Syrup of Hypophosphites
- 1190 Compound Syrup of White Pine
- 1191 Compound Tincture of Cinchona
- 1192 Tincture of Cinnamon
- 1193 Acetic Tincture of Larkspur
- 1194 Compound Tincture of Gambir
- 1195 Tincture of Kino
- 1196 Tincture of Rhubarb
- 1197 Sweet Tincture of Rhubarb
- 1198 Compound Tincture of Viburnum
- 1199 Compound Ointment of Resorcinol

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| 1200 | Clinical Diagnosis Preparations | 1255 | Dermatological preparations |
| 1201 | Toisson's Fluid (Blood Diluent) | 1256 | Diabetic drugs and pharmaceuticals |
| 1202 | Haines' Solution (for Dextrose) | 1257 | Digestive preparations |
| 1203 | Glycerine Bouillon (Culture medium) | 1258 | Digitalis stabilization |
| 1204 | Glycerine Agar (Culture medium) | 1259 | Disguising vehicle for bitter medicines |
| 1205 | Bordet-Gengou Potato Medium | 1260 | Disinfectants |
| 1206 | Corper's Medium | 1261 | Diuretic |
| 1207 | Petroff's Medium | 1262 | Douches |
| 1208 | Delafield's Hematoxylin (staining) Solution | 1263 | Dry tongue (in fever, etc.) |
| 1209 | Pappenheim's Solution | 1264 | Dysentery-treating compositions |
| 1210 | Giemsa's Staining Solution | 1265 | Eczema preparations |
| 1211 | Glycerine (mounting) Jelly | 1266 | Elixirs (other than U.S.P. and N.F.) |
| 1212 | Adhesive tapes and plasters | 1267 | Emetics |
| 1213 | Alginate gels | 1268 | Emollient and demulcent |
| 1214 | Allergenic preparations for desensitization | 1269 | Emulsions of tyrothricin, etc. |
| 1215 | Alteratives | 1270 | Enemas |
| 1216 | Amebicides (in amebiasis) | 1271 | Enteric coatings for pills and tablets |
| 1217 | Analgesic ointments | 1272 | Expectorants |
| 1218 | Anesthetics, local | 1273 | Eye lotions, drops and washes |
| 1219 | Anesthetics, parenteral | 1274 | First aid material |
| 1220 | Antacid solutions | 1275 | Fissured nipples (e.g. Playfair's Solution) |
| 1221 | Antacids | 1276 | Flavoring vehicle (e.g. syrups) |
| 1222 | Anthelmintics | 1277 | Fluid extracts (other than U.S.P. and N.F.) |
| 1223 | Antiperspirants | 1278 | Frost bite preparations |
| 1224 | Antiphlogistines | 1279 | Fungicidal preparations |
| 1225 | Antiseptic preparations | 1280 | Gargles |
| 1226 | Antiseptic washes | 1281 | Gelatin capsules |
| 1227 | Antitoxins | 1282 | Glandular extracts |
| 1228 | Antivenins (snake venom preparation) | 1283 | Glycerine-gelatine combinations
(e.g. Unna's boot) |
| 1229 | Asthma inhalants | 1284 | Glycerites |
| 1230 | Astringents | 1285 | Glycero-gelatine casts for ulcers, etc. |
| 1231 | Auralodynes and other ear preparations | 1286 | Glycero-gelatines (other than U.S.P.)
and N.F.) |
| 1232 | Balsams | 1287 | Greaseless bases |
| 1233 | Bentonite pastes | 1288 | Hemoglobin preservation |
| 1234 | Bismuth compounds for syphilis | 1289 | Hemorrhoids injection treatment |
| 1235 | Bladder treatments | 1290 | Hemostatic solutions |
| 1236 | Blood plasma desiccating cylinders | 1291 | Hemostatic venoms |
| 1237 | Bone marrow extracts | 1292 | Hernia, injection treatment of |
| 1238 | Botanicals, microscopic identification | 1293 | Honey of sodium borate |
| 1239 | Burn films | 1294 | Hormone preparations (as vehicle) |
| 1240 | Burn jellies and ointments | 1295 | Hydrocele injection treatment |
| 1241 | Burn treatments (with sterile glycerine) | 1296 | Hydrofluoric acid burns |
| 1242 | Callus and corn preparations | 1297 | Hyperhidrosis compounds |
| 1243 | Cardiac stimulant (Spirit of Nitroglycerine) | 1298 | Ice packs (long lasting) |
| 1244 | Cataract non-surgical treatment | 1299 | Infusions |
| 1245 | Catgut sutures | 1300 | Insect bite remedies |
| 1246 | Chap and chafing compositions | 1301 | Instrument disinfectants and sterilizers |
| 1247 | Coloring agents | 1302 | Insulin |
| 1248 | Colonic irrigations | 1303 | Intra-uterine therapy |
| 1249 | Compress moistening fluids | 1304 | Intussusception reduction |
| 1250 | Compresses (for rheumatism, etc.) | 1305 | Laxatives |
| 1251 | Contraceptive jellies and creams | 1306 | Leukoderma and blemish cover compounds |
| 1252 | Cough and cold preparations | 1307 | Leukorrhia treatments |
| 1253 | Crust and scab softener | | |
| 1254 | "Cuticolor" preparations | | |

1400 Cheeses, processed
 1401 Chewing gum
 1402 Chocolate bars resistant to hot weather
 1403 Chocolate manufacture
 1404 Coconut preservation
 1405 Cod liver oil emulsions
 1406 Coloring compositions
 1407 Confectionery
 1408 Culinary ingredient
 1409 Curdling prevention for custards
 1410 Curing salts for meats
 1411 Dehydrated foods
 1412 Diabetic foods
 1413 Dried fruit treatments
 1414 Edible fats
 1415 Egg and egg yolk processing
 1416 Emulsifiers
 1417 Emulsifiers for general food uses
 1418 Flavoring compositions
 1419 Flavor pastes and emulsions
 1420 Food analysis
 1421 Fowl plucking composition (ester gum)
 1422 Freezing point depressant for ice cream, etc.
 mixes
 1423 Freshness retention
 1424 Frozen food containers and packagings
 1425 Frozen foods indicator inks
 1426 Fruit cakes
 1427 Fruit juice preservation
 1428 Gelatin products
 1429 Glazes for frozen foods
 1430 Glycero-gelatine bases for jellies, jujubes, etc.
 1431 Ice-cream manufacture
 1432 Icings and frostings for cakes
 1433 Immersion quick freezing processes
 1434 Infant foods
 1435 Inks for food packaging
 1436 Jellies and jams
 1437 Licorice compounds
 1438 Lubricant for food processing equipment
 1439 Malt extracts
 1440 Margarine emulsifiers
 1441 Marshmallow
 1442 Meat casings
 1443 Meat extracts
 1444 Meat seasoning compounds
 1445 Meat stamping inks
 1446 Milk specimen preservative
 1447 Milk testing
 1448 Modifying natural oils
 1449 Nutrient
 1450 Nut skinning solutions
 1451 Odor development inhibitor
 1452 Packaging materials
 1453 Peanut butter improver

1454 Pectin extraction and preservation
 1455 Preserves (whole fruit, etc.)
 1456 Preservatives for food products
 1457 Preserving cut surfaces of fresh meat
 1458 Preventing milk boiling over
 1459 Protective coatings for fruits, nuts, etc.
 1460 Protective coatings on meats, poultry, etc.
 1461 Protectives against poison gases
 1462 Rancidity preventive in dairy products, etc.
 1463 Rennet preparation and preservation
 1464 Rice oil purification
 1465 Shortenings
 1466 "Smoked" flavor coatings
 1467 Solid seasoning compositions
 1468 Soy bean products
 1469 Special foods for invalids
 1470 Stabilizers for food emulsions
 1471 Sterilizer for foods
 1472 Sugar refractometer standardization
 1473 Sweetening agent
 1474 Synthetic fats
 1475 Tallowy odor retarder for grain products
 1476 Treating teaseed oil
 1477 Vegetable extracts
 1478 Yeast products

PERFUMES

1479 Aromatic chemicals (derivatives)
 1480 Cologne waters
 1481 Eau de Quinine
 1482 Emulsion perfumes and colognes
 1483 Extractant for odorous constituents of flowers
 1484 "Fixative" for perfumes
 1485 Glycerine derivative fixatives (e.g. glyceryl acetate)
 1486 Perfume extractive (derivative)
 1487 "Solid" perfumes
 1488 Solvent
 1489 Toilet waters
 1490 Vehicle and sterilizer in perfumes

TOBACCO

1491 Casing mixtures
 1492 Chewing-tobacco treatments

- 1493 Cigarette papers (special)
- 1494 Crumb formation prevention
- 1495 Facilitating tobacco handling
- 1496 Flavor solvent
- 1497 Humectant (for moisture retention)
- 1498 Humidifier
- 1499 Mold inhibition
- 1500 Packaging materials
- 1501 Plumping agent for cigarettes
- 1502 Scrap tobacco salvage
- 1503 Smoking irritation reducer
- 1504 Tobacco humidors
- 1505 Tobacco improvers

VETERINARY MEDICINE

- 1506 Animal liquid soaps
- 1507 Antiseptic solutions
- 1508 Antiseptic wash for genital horse pox
- 1509 Bird colas
- 1510 Bird tonics
- 1511 Blow-fly "strike" prophylaxis and treatment
- 1512 Calf scour prevention
- 1513 Catarrhal otorrhea therapy
- 1514 Chicken pox treatment
- 1515 Cough electuary for horses
- 1516 Cracked heel treatment for horses
- 1517 Dermatological preparations
- 1518 Disinfectants
- 1519 Dog mouth wash
- 1520 Ear-ache remedies
- 1521 Ear mange treatments
- 1522 Ear-mite eradication
- 1523 Ear wax softening
- 1524 Equine tetanus treatment (with serum)
- 1525 Eye lotions
- 1526 Expectorants for dogs
- 1527 Favus of poultry; treatment of
- 1528 Fowl tonic pills
- 1529 Fungus infection preparations
- 1530 Gall treatments (for horses)
- 1531 Gelatine capsules
- 1532 Hair restorers
- 1533 Hardening tender feet of dogs
- 1534 Heaves treatment
- 1535 Hog cholera serum
- 1536 Horse physic balls
- 1537 Instrument sterilizing solutions
- 1538 Iodine-glycerine preparations
- 1539 Laboratory diagnosis

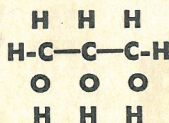
- 1540 Lungworm disease treatment
- 1541 Mange-treating materials
- 1542 Necrotic rhinitis therapy
- 1543 Petyriasis (dandruff) treatments
- 1544 Phenolated glycerine
- 1545 Pill-massing material
- 1546 Rabies vaccine
- 1547 Ringworm treatment
- 1548 Sheep foot-rot treatment
- 1549 Skin lotions
- 1550 Specimen preservation
- 1551 Veterinary antiseptic lotions and washes
- 1552 Wound and injury dressings
- 1553 Wound-treating compositions
- 1554 Wound treatments

MISCELLANEOUS

- 1555 Aluminum-bronze body paints for athletic displays
- 1556 Antiseptic aerosols
- 1557 Artificial tears (for motion picture photography)
- 1558 "Black eye" paint
- 1559 Bleaching dried plants
- 1560 Chemical weather indicators
- 1561 Diorama and scale model foliage
- 1562 Embalmer's cosmetic sprays
- 1563 Embalmer's finishing creams
- 1564 Embalmer's tissue fillers
- 1565 Embalming fluids
- 1566 Embalming preinjection fluids
- 1567 Fish bait, artificial
- 1568 Fish bait preservative
- 1569 Fly papers
- 1570 Freshener for indoor plants
- 1571 Freshening decorative leaves, etc.
- 1572 Gas mask cannisters
- 1573 Humidity control in entomology
- 1574 Ice packs (long lasting)
- 1575 Insecticides
- 1576 Mothproofing fluid
- 1577 Preserving botanical, zoological and anatomical specimens
- 1578 Preserving decorative foliage
- 1579 Preserving flowers
- 1580 Poison gas indicators
- 1581 Skin protection against mustard gas
- 1582 Tattoo mark removal
- 1583 Telephone mouthpiece antiseptic

APPENDIX

TABLES SHOWING PROPERTIES OF GLYCERINE



The tables and charts reproduced in the following pages are included primarily for the benefit of the chemist or technician who may need this precise assistance in determining the properties of glycerine in application to specific research problems.

They give for ready reference exact data on aqueous glycerine solutions in varying percentages and on relative humidity over aqueous glycerine solutions over an indicated temperature range, glycerine concentration versus viscosity, vapor pressure, and freezing point.

It will be noted that the viscosity of glycerine at various temperatures increases rapidly beyond 60-70 per cent concentration.

For the quantitative estimation of small quantities of water in glycerine, the specific gravity method is convenient and accurate.

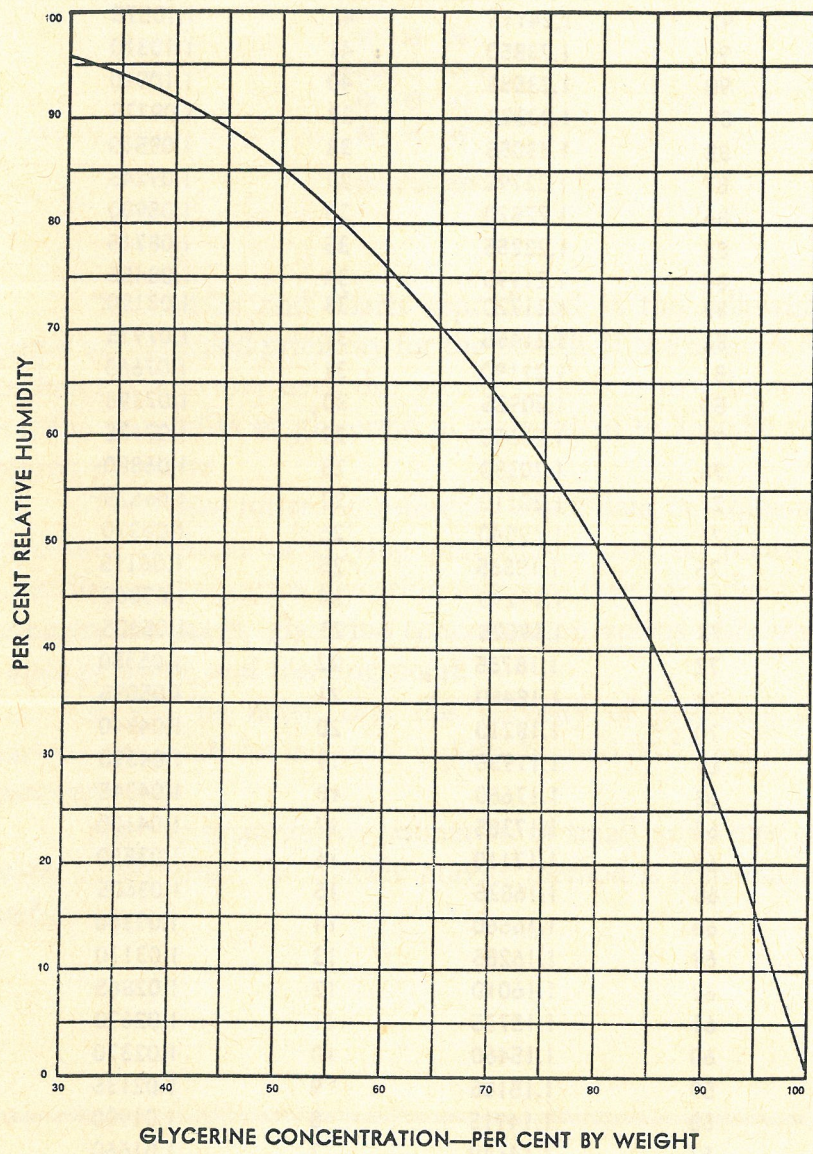
AQUEOUS GLYCERINE SOLUTIONS

Apparent Specific Gravity (Air)

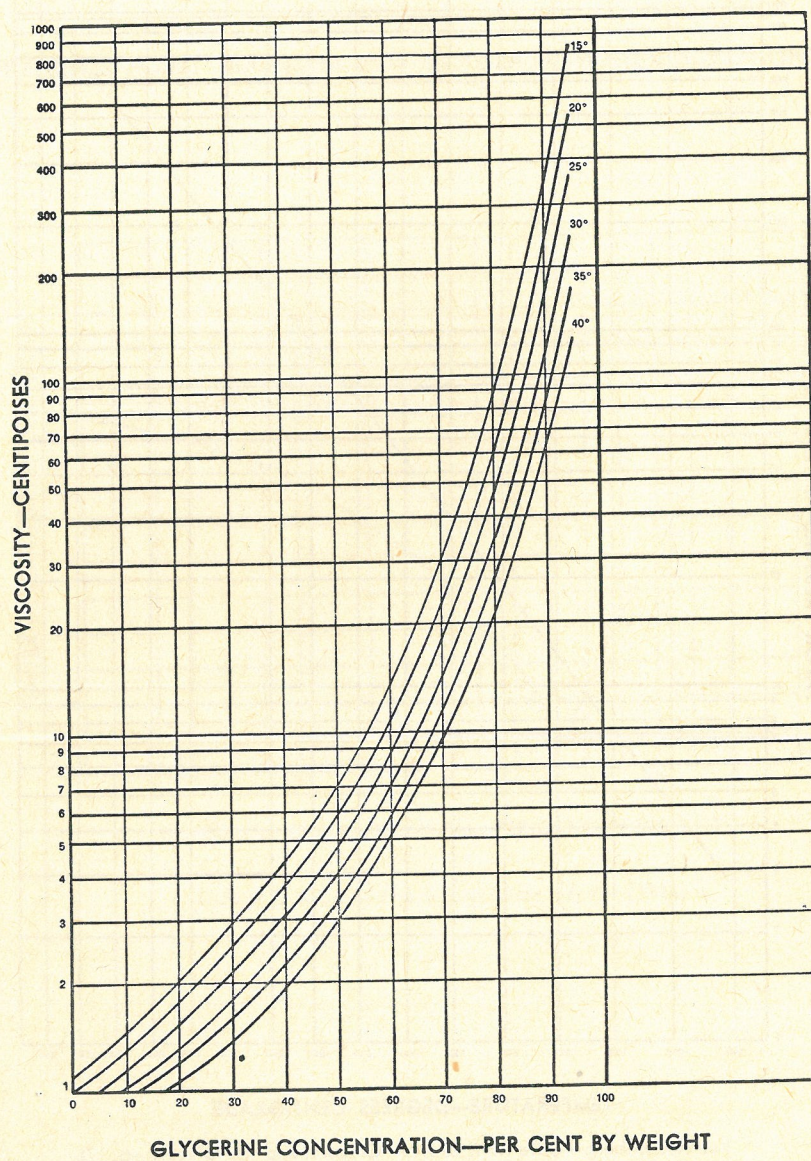
per cent Glycerol	25°/25° C.	per cent Glycerol	25°/25° C.
100	1.26201	50	1.12720
99	1.25945	49	1.12450
98	1.25685	48	1.12185
97	1.25425	47	1.11915
96	1.25165	46	1.11650
95	1.24910	45	1.11380
94	1.24645	44	1.11115
93	1.24380	43	1.10845
92	1.24115	42	1.10575
91	1.23850	41	1.10310
90	1.23585	40	1.10040
89	1.23320	39	1.09775
88	1.23055	38	1.09510
87	1.22790	37	1.09245
86	1.22520	36	1.08980
85	1.22255	35	1.08715
84	1.21990	34	1.08455
83	1.21720	33	1.08190
82	1.21455	32	1.07925
81	1.21190	31	1.07660
80	1.20925	30	1.07395
79	1.20655	29	1.07135
78	1.20380	28	1.06880
77	1.20110	27	1.06625
76	1.19840	26	1.06370
75	1.19565	25	1.06115
74	1.19295	24	1.05860
73	1.19025	23	1.05605
72	1.18755	22	1.05350
71	1.18480	21	1.05095
70	1.18210	20	1.04840
69	1.17935	19	1.04590
68	1.17660	18	1.04345
67	1.17385	17	1.04100
66	1.17110	16	1.03850
65	1.16835	15	1.03605
64	1.16560	14	1.03360
63	1.16285	13	1.03110
62	1.16010	12	1.02865
61	1.15735	11	1.02620
60	1.15460	10	1.02370
59	1.15185	9	1.02135
58	1.14915	8	1.01900
57	1.14640	7	1.01660
56	1.14365	6	1.01425
55	1.14090	5	1.01185
54	1.13815	4	1.00950
53	1.13540	3	1.00710
52	1.13265	2	1.00475
51	1.12995	1	1.00235

RELATIVE HUMIDITY OVER AQUEOUS GLYCERINE SOLUTIONS

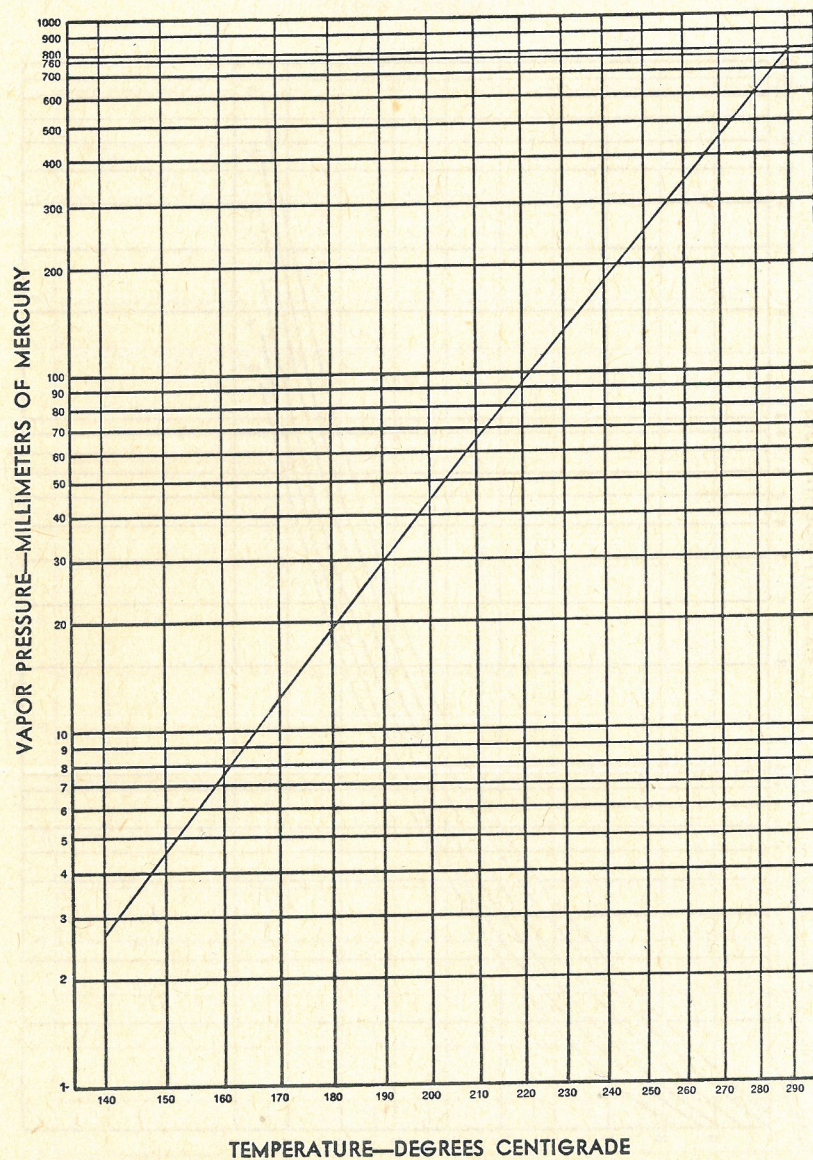
15-45° Centigrade



GLYCERINE CONCENTRATION VS. VISCOSITY AT 15 to 40° C.

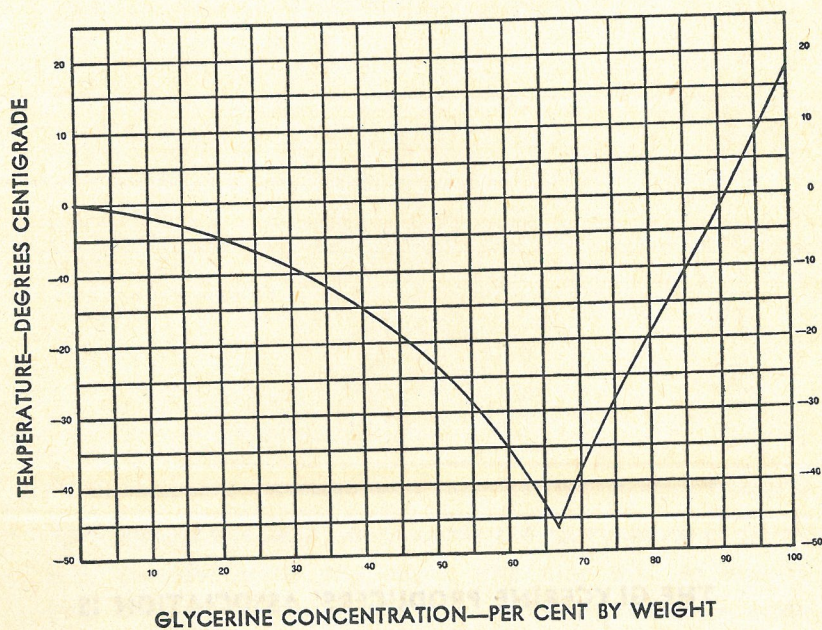


VAPOR PRESSURE OF GLYCERINE VS. TEMPERATURE

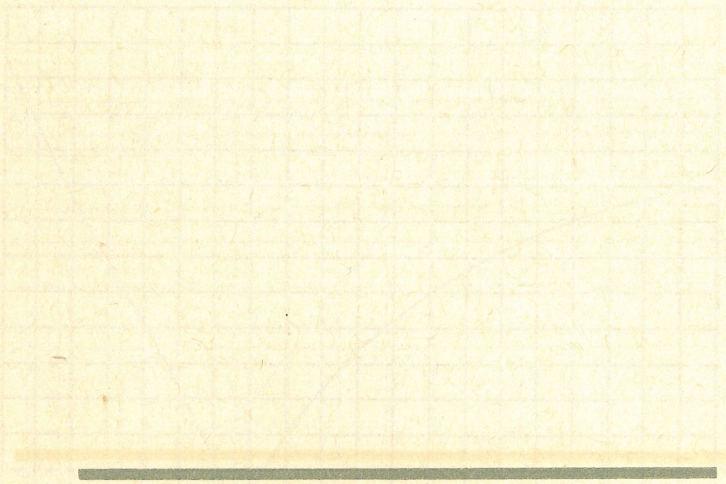


Von Reckenberg—Data from Lawrie—Glycerol and the Glycols—p. 176

FREEZING POINT DIAGRAM FOR GLYCERINE-WATER SOLUTIONS



Data of L. B. Lane—Ind. & Eng. Chem. 17, 924 (1925)



**THE GLYCERINE PRODUCERS' ASSOCIATION IS
A COOPERATIVE ORGANIZATION REPRESENT-
ING ALL THE IMPORTANT MAKERS OF GLYCER-
INE AND NINE-TENTHS OF THE TOTAL GLYC-
ERINE PRODUCTION IN THE UNITED STATES**

This booklet has been compiled for the convenience of chemists, manufacturers, and others who may wish to investigate the possibilities of glycerine in their production problems or to study its wider applications. The list of uses is numbered continuously so as to serve as a reference in requesting information.

Inquiries about any of these uses may be sent to:

GLYCERINE PRODUCERS' ASSOCIATION
295 MADISON AVENUE, NEW YORK 17, N. Y.

1583 WAYS *to use* GLYCERINE

as a

- CARRIER
- SOLVENT
- SOFTENER
- EMOLLIENT
- MOISTENER
- LUBRICANT
- HUMECTANT
- PRESERVATIVE