

The finished syrup should be kept in small, well stoppered, completely filled bottles in ordinary daylight. The color of the glass is immaterial.

Neither invert sugar nor glucose are preferable to granulated sugar.

Syrup of iodide of iron made from the best ingredients does not need any preservative to remain perfect on the shelves of the shop. The samples with hypophosphorous acid kept equally well as those without it; but its addition is neither an advantage nor a necessity.

After dispensing, or when the bottles are opened several times a day, citric acid is the best preservative; but its power seems to be restricted to a limited time, after which discoloration takes place very rapidly.

When the pale green color of the syrup has changed to lemon yellow or light brown, the loss of ferrous iodide is very small, ranging from one-fourth to three-fourths of one percent of the required quantity.

On the strength of these results the conclusion may be drawn that syrup of iodide of iron, when prepared from pure chemicals, does not need any preservative. When dispensed in bottles that will be opened several times a day, the addition of one-half of one percent of citric acid is advisable, provided the prescribed quantity will be consumed within thirty days. A slight change of the color during the prescribed time of taking it is negligible.

ASH CONTENT OF CRUDE DRUGS.

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Ash standards of crude drugs have been given more consideration of late years than formerly and are now included in the United States Pharmacopœia and the more widely known foreign pharmacopœias. Ash limitations were first introduced in the second edition of the German Pharmacopœia, published in 1882 and in the United States Pharmacopœia of 1880.

On account of the difficulty in securing reliable data on these ash standards, an investigation was begun in our laboratory with the object of securing suitable standards and ascertaining the actual variation in ash content of the various drugs.

These determinations were made upon the commercial air dried drugs after having been reduced to a fine powder (No. 60 if possible) and the sample incinerated until the residue was free from carbon, employing such means as to insure perfect combustion. The sample was placed in a tared porcelain crucible and at first, heated gently in a Bunsen flame, the temperature being gradually increased, or a blast lamp employed, until the residue ash contained no unconsumed carbon.

The ash standards as set by the various pharmacopœias are not all that could be desired. Most striking variations may be seen in ash standards for the same drug in different pharmacopœias as was clearly shown in a paper by M. I. Wilbert (*Jour. A. Ph. A.*, May, 1912) and in which he gives a table of ash limitations for the recently published pharmacopœias.

The importance of ash examinations in determining the quality of crude drugs should not be overlooked as they form one of the best tests as to quality, uniformity, etc.

The Report of the Committee on Drug Market for 1913 contains ash determinations for nearly all of the crude drugs reported.

The ash standards of the various pharmacopœias and other authorities, are given as a means of comparison with the results reported.

TABLE SHOWING ASH CONTENT OF CRUDE DRUGS.

| <i>Drug.</i> | <i>Physical Condition.</i> | <i>Ash %.</i> | <i>Remarks.*</i> |
|--------------------------------|----------------------------|----------------|---|
| Acacia No. 1..... | powdered | 1.73 to 2.58 | Ph. G., Ph. Hung., Ph. Svec., Ph. Belg., 5%; Ph. Ital., Ph. Helv., Ph. Ndl., U. S. P., 4% ash. |
| Acacia No. 2..... | powdered | 2.19 to 2.82 | |
| Acacia No. 2..... | granular | 2.36 | |
| Aconite Root (German)..... | | 3.80 to 5.98 | |
| Aconite Root..... | powdered | 3.52 | |
| Althea Root..... | powdered | 8.18 to 10.35 | K., 5%; Ph. Belg., 7½%; Ph. Aust., Ph. Helv., 6%; Ph. Ndl., 7%. |
| Aloes, Socotrine..... | powdered | 4.63 to 8.95 | K., 4%; Ph. G., Ph. Aust., 1%; Ph. Fr., Ph. Helv., Ph. Ndl., 1.5%; Ph. Ital., 2% ash. |
| Agaric, White..... | granular | 1.29 | |
| Angelica Seed (European)..... | granular | 7.16 to 7.35 | |
| Asafœtida..... | powdered | 8.73 to 16.79 | U. S. P., Ph. G., 15%; Ph. Ital., Ph. Fr., Ph. Svec., Ph. Aust., Ph., Belg., Ph. Ndl., 10%; Ph. Helv., 20%. |
| Avena Sativa..... | granular | 0.4 | U. S. D., 2.15% ash. |
| Balm Gilead Suds..... | granular | 1.84 to 2.41 | |
| Belladonna Leaves..... | granular | 6.25 to 13.30 | Ph. G., Ph. Helv., Ph. Aust., 15% ash. |
| Berberis Aquifolium..... | ground | 2.85 to 3.20 | |
| Berberis Aquifolium..... | granular | 2.64 to 2.78 | |
| Berberis Aquifolium..... | powdered | 2.07 to 2.54 | |
| Black Haw, Bark of Root..... | granular | 11.54 to 12.64 | |
| Black Haw, Bark of Root..... | ground | 12.88 to 13.41 | |
| Black Haw, Bark of Root..... | | 12.81 | K., 10% ash. Sample very dirty, containing much silicious matter. |
| Blood Root..... | granular | 5.27 to 7.42 | |
| Blood Root..... | ground | 7.23 | |
| Blue Cohosh..... | granular | 6.78 to 7.84 | |
| Blue Flag Root..... | granular | 3.14 | |
| Broom Corn Seed..... | whole sd. | 2.58 | |
| Buchu, Long..... | | 3.84 to 4.60 | |
| Buchu, Short..... | ground | 4.75 | |
| Buchu, with Stems..... | granular | 5.24 | U. S. D., 4.40% to 4.69% ash. |
| Buckthorn Bark..... | granular | 5.15 to 5.84 | K., 5 to 6% ash. |
| Burdock Root (Foreign)..... | granular | 4.20 to 10.45 | |
| Calamus Root..... | granular | 2.75 to 3.81 | |
| Cannabis (African)..... | granular | 18.80 | |
| Cannabis Indica..... | powdered | 14.00 to 20.89 | |
| Cantharides, Russian..... | powdered | 6.61 | U. S. P., Ph. G., Ph. Helv., Ph. Aust., 8%; Ph. Ndl., 9%; Ph. Ital., 7% ash. |
| Capsicum..... | powdered | 6.86 to 6.96 | |
| Capsicum..... | granular | 5.10 to 6.19 | Ph. B., Ph. G., Ph. Helv., Ph. Aust., 6½%; Ph. Hung., 5% ash; K., 4 to 6% ash. |
| Caraway Seed (Dutch)..... | granular | 5.98 to 6.82 | U. S. P., Ph. Helv., Ph. G., 8%; Ph. Aust., 7% ash. |
| Cardamom..... | granular | 4.92 to 5.47 | Ph. Aust., Ph. Ndl., 8%; Ph. Helv., 10% ash. |
| Cardamom..... | powdered | 5.04 to 7.49 | U. S. P., 4% ash. |
| Cascara Sagrada..... | powdered | 4.70 | K., ash 7%; Ph. G., 6%; Ph. Ndl., 10% ash. |
| Catnip Herb..... | granular | 11.09 | |
| Celery Seed..... | granular | 7.25 to 10.22 | |
| Chamomile Flowers (Hung.)..... | granular | 2.00 to 2.64 | |
| Charcoal (Willow)..... | powdered | 6.21 | Ph. G., 5%; Ph. Ital., Ph. Helv., Ph. Ndl., 2% ash. |
| Cinchona Bark, Red..... | granular | 9.30 to 15.07 | |
| Cinnamon, Saigon Quills..... | powdered | 3.06 to 5.03 | |

| <i>Drug.</i> | <i>Physical Condition.</i> | <i>Ash %.</i> | <i>Remarks.*</i> |
|--------------------------------|----------------------------|-----------------|---|
| Cinnamon, Saigon Quills..... | granular | 3.12 to 4.53 | |
| Cinnamon Bark (China)..... | granular | 1.83 | |
| Cinnamon Bark (China)..... | powdered | 2.73 | |
| Clover Tops, Red..... | granular | 8.45 to 12.60 | |
| Cloves | powdered | 5.25 to 5.54 | U. S. P., Ph. Aust., Ph. G., 8%; Ph. Helv., 7%; Ph. Ndl., 6% ash. |
| Coca Leaves (Truxillo)..... | granular | 6.22 to 12.07 | |
| Cochineal | powdered | 3.69 to 13.15 | Labeled—For technical use only. |
| Cochineal, Silvered..... | whole bug | 6.86 | U. S. P., Ph. Helv., 6% ash. |
| Cochineal, Black..... | whole bug | 7.01 | |
| Colchicum Seed..... | granular | 2.23 to 2.51 | K., 2½% ash. |
| Colombo Root..... | granular | 7.87 to 10.87 | K., 6%; Ph. Helv., 8%; Ph. Aust., 6% ash. |
| Corn Silk, Dried..... | granular | 5.38 to 7.61 | K., 12% ash. |
| Cramp Bark..... | granular | 1.45 to 3.50 | Cramp Bark so-called. |
| Cubeb, Berries (Stemless)..... | powdered | 6.03 to 7.87 | K., 6%; Ph. G., Ph. Helv., 8%; Ph. Ital., Ph. Aust., 9%; Ph. Ndl., 10% ash. |
| Cubeb Berries (with Stems)... | | 6.64 to 6.80 | |
| Cubeb Berries..... | powdered | 6.61 | |
| Cudbear | powdered | 7.83 | Label stated—8 to 10% ash. |
| Damiana | granular | 10.41 | |
| Dandelion Root..... | granular | 3.03 to 15.30 | K., 5% ash. |
| Digitalis Leaves..... | granular | 6.90 to 7.75 | |
| Digitalis Leaves..... | powdered | 11.55 to 11.90 | K., 10 to 16%; Ph. Belg., Ph. Helv., Ph. Aust., 10% ash. |
| Doggrass, German..... | granular | 4.65 to 5.48 | |
| Doggrass | ground | 3.94 | |
| Dogwood, Jamaica..... | granular | 9.99 to 11.47 | Some samples were very dirty, containing many small pebbles. |
| Echinacea Root..... | granular | 4.87 to 5.23 | |
| Echinacea Root..... | powdered | 5.86 to 6.05 | |
| Ergot | granular | 3.40 to 4.16 | K., 4½%; Ph. Ital., Ph. Helv., Ph. Aust., Ph. Ndl., 5% ash. |
| Euphorbia | granular | 8.33 to 21.66 | One sample the ash consisted principally of sand. |
| Fennel Seed (Moravian | granular | 7.85 to 8.40 | K., 7%; Ph. Helv., Ph. G., Ph. Aust., 10%; Ph. Belg., 12% ash. |
| Gamboge | powdered | 0.82 to 1.31 | K., 1 to 3% ash. |
| Gelsemium Root..... | granular | 2.24 to 2.59 | |
| Gentian Root..... | granular | 2.99 to 2.42 | Ph. Aust., 5%; Ph. Helv., Ph. Ndl., 6%; Ph. Belg., 7% ash. |
| Gentian Root..... | powdered | 4.07 | |
| Ginger, Jamaica..... | powdered | 2.81 to 4.24 | N. S. D., 4 to 5% ash. |
| Ginger, Jamaica..... | granular | 3.31 to 4.01 | |
| Golden Seal Root..... | granular | | Ph. Ital., Ph. Aust., Ph. Helv., Ph. Ndl., 6% ash. |
| Golden Seal Root..... | powdered | 9.93 to 14.33 | |
| Guarana | powdered | 0.89 to 1.18 | K., 2% ash. |
| Guaiaac Gum..... | powdered | 3.20 to 4.95 | K., not more than 4% ash. |
| Henbane Leaves..... | granular | 20.45 to *35.32 | Ash principally sand. Ph. G., 24% ash. |
| Hydrangea Root..... | granular | 2.91 to 5.18 | |
| Ipecac, Carthagena..... | | 6.21 to 8.05 | |
| Ipecac, Carthagena..... | powdered | 5.44 to 7.83 | Ph. Helv., Ph. Ital., 4%; Ph. Aust., 5%; Ph. Ndl., 6% ash. |
| Ipecac Root..... | powdered | 3.28 to 5.06 | |
| Irish Moss, Bleached..... | whole | 16.61 to 17.64 | U. S. D., not more than 17%; K., 10 to 15% ash. |
| Juniper Berries..... | | 3.82 | K., 2 to 4% ash. |
| Juniper Berries..... | granular | 3.17 to 3.19 | |
| Larkspur Seed..... | powdered | 5.00 to 6.42 | |
| Licorice | cuttings | 5.18 to 5.62 | |
| Licorice, Spanish..... | cuttings | 2.61 to 6.61 | Ph. Helv., Ph. Aust., Ph. Ndl., 6%; Ph. Belg., 7% ash. |
| Life Root Plant..... | granular | 8.26 to 9.61 | |
| Liverwort Leaves..... | granular | 10.25 | |

| <i>Drug.</i> | <i>Physical Condition.</i> | <i>Ash %.</i> | <i>Remarks.*</i> |
|--------------------------------------|----------------------------|----------------|--|
| Lobelia Herb..... | granular | 8.04 | |
| Lycopodium | | 0.27 to 1.44 | U. S. P., Ph. Ndl., 5%; Ph. Belg., Ph. Ital., 4%; Ph. Aust., Ph. Helv., Ph. G., 3% ash. |
| Manaca | granular | 1.34 to 1.82 | |
| Mandrake | granular | 5.42 | |
| Manna | sm. flakes | 0.62 | K., 1.3 to 4%; Ph. G., Ph. Helv., 3%; Ph. Ital., 3½%; Ph. Svec., Ph. Aust., 4% ash. |
| Musk Root..... | granular | 6.01 to 8.27 | K., about 8% ash. |
| Myrrh Gum..... | powdered | 4.08 to 5.45 | K., 5 to 10%; Ph. Ndl., 5%; Ph. Belg., Ph. Aust., Ph. Svec., Ph. Ital., Ph. Helv., 6%; Ph. G., 7% ash. |
| Nutmeg | powdered | 1.83 to 2.68 | |
| Nux Vomica..... | powdered | 1.69 to 2.25 | K., 1 to 4%; Ph. Aust., Ph. G., 3%; Ph. Helv., 3½% ash. |
| Nux Vomica..... | granular | 1.57 to 2.39 | |
| Nux Vomica..... | | 2.07 | |
| Opium | powdered | 5.84 to 7.37 | K., 4 to 8%; Ph. Aust., Ph. Helv., Ph. Ital., 6% ash. |
| Orange Peel, Dried (Bitter)... | | 3.80 | K., ash about 5%. |
| Orange Peel, Dried (Sweet)... | | 3.72 | |
| Orange Peel, Dried (Bitter)... | granular | 3.28 to 4.74 | |
| Orris Root..... | powdered | 2.69 | |
| Passion Flower Herb..... | | 9.12 to 9.22 | |
| Passion Flower Herb..... | granular | 11.95 | Ash consisted principally of sand. |
| Pepper, Black..... | | 3.53 to 4.99 | K., ash about 5%. |
| Peppermint Herb..... | crushed | 12.24 | Contained an excess of stems. |
| Peppermint Herb..... | granular | 12.75 | Ash consisted chiefly of silicious matter. |
| Peppermint Herb..... | | 13.07 | Ash consisted chiefly of silicious matter. |
| Pichi Leaves..... | | 8.30 | |
| Poke Root..... | granular | 8.74 to 9.89 | N. S. D., 8 to 10%; K., 13% ash. |
| Prickly Ash Bark..... | granular | 6.78 to 7.34 | K., ash about 12%. |
| Pulsatilla Herb..... | granular | 6.60 to 7.83 | |
| Pulsatilla Herb..... | | 8.15 to 9.93 | |
| Quassia Chips..... | granular | 2.00 to 2.49 | |
| Red Rose Leaves..... | powdered | 3.27 to 4.06 | |
| Red Saunders..... | powdered | 1.04 to 1.15 | |
| Rhubarb Root..... | granular | 5.93 to 9.21 | K., ash about 15%; Ph. Aust., Ph. G., Ph. Ital., Ph. Ndl., 12%; Ph. Helv., 13% ash. |
| Rhubarb Root..... | ground | 8.44 | |
| Rhubarb Root..... | powdered | 8.66 to 9.74 | |
| Saffron, American..... | granular | 4.52 to 6.98 | |
| Sandalwood | granular | 4.20 to 5.76 | |
| Sassafras Bark..... | ground | 43.93 | Ash consisted principally of sand. |
| Sassafras Bark..... | granular | 11.93 | |
| Saw Palmetto Berries (Dried)... | granular | 1.81 to 2.62 | |
| Saw Palmetto Berries (Dried)... | powdered | 2.42 to 3.07 | |
| Senega Root..... | granular | 5.04 to 6.97 | U. S. P., 7% ash. |
| Senega Root..... | ground | 6.85 | |
| Senega Root (North Western)..... | | 5.04 | |
| Senna, Half Leaf (Alex.)..... | | 9.06 to 9.85 | K., 10 to 12% ash. |
| Senna, Half Leaf (Alex.)..... | granular | 10.93 to 12.62 | |
| Senna, Half Leaf (Alex.)..... | powdered | 9.86 to 12.20 | Ph. Belg., Ph. G., Ph. Helv., 12%; Ph. Aust., 10%; Ph. Ndl., 8% ash. |
| Senna, Broken..... | | 9.21 to 11.04 | |
| Senna, Broken..... | powdered | 8.96 | |
| Senna siftings..... | | 16.82 | |
| Snakewood Bark (Cascara amarga)..... | granular | 7.72 | |
| Spikenard Root..... | granular | 5.93 to 7.78 | |
| Squaw Vine..... | granular | 6.77 to *14.21 | One sample the ash consisted principally of sand. |

| <i>Drug.</i> | <i>Physical Condition.</i> | <i>Ash %.</i> | <i>Remarks.*</i> |
|------------------------------|----------------------------|-----------------|--|
| Squills | granular | 3.64 to 6.98 | |
| Squills | powdered | 2.29 to 3.23 | Sq., 3% ash; Ph. G., 5%; Ph. Aust., 8%; Ph. Helv., 5% ash. |
| Stillingia Root..... | ground | 5.81 | K., 5% ash. |
| Stillingia Root..... | granular | 4.47 to 5.39 | |
| Stone Root..... | granular | 4.43 | |
| Stramonium Leaves..... | | 21.04 to *27.80 | Drug adulterated. K., 17%; Ph. G., 20% ash. |
| Stramonium Herb..... | granular | 14.76 to 18.64 | |
| Tragacanta Gum..... | | 2.93 | |
| Tragacanth Gum..... | powdered | 2.85 | Sq., ash 2 to 3% rarely exceeds 4%; K., about 3% ash. |
| Unicorn Root, False..... | granular | 4.54 to 12.20 | |
| Uva Ursi Leaves..... | | 3.29 | Label stated about 3% ash. |
| Uva Ursi Leaves..... | granular | 1.44 to 3.13 | K., not more than 3% ash. |
| Valerian Root (Belgian)..... | powdered | 22.04 to 24.14 | Ph. Belg., 15%; Ph. Helv., 12%; Ph. Aust., 10% ash. |
| Valerian Root (Belgian)..... | | 18.61 | |
| Vanilla Beans (Mex. Cuts)... | | 0.40 | K., ash about 5%. |
| White Pine Bark..... | granular | 1.09 to 2.04 | |
| Wild Cherry Bark..... | granular | 2.48 to 4.62 | |
| Yellow Dock Root..... | granular | 11.67 | |
| Yerba Santa..... | granular | 5.13 | |

*Abbreviations:

- K.—Kraemer's Botany and Pharmacognosy.
- U. S. D.—United States Dispensatory.
- N. S. D.—National Standard Dispensatory.
- Sq.—Squires Companion of the British Pharmacopœia.
- Ph. B.—British Pharmacopœia.
- Ph. G.—German Pharmacopœia.
- Ph. Belg.—Belgian Pharmacopœia.
- Ph. Fr.—French Pharmacopœia.
- Ph. Ital.—Italian Pharmacopœia.
- Ph. Helv.—Helvetica Pharmacopœia (Swiss).
- Ph. Svec.—Swedish Pharmacopœia.
- Ph. Ndl.—Netherlands Pharmacopœia.
- Ph. Aust.—Austrian Pharmacopœia.
- Ph. Hung.—Hungarian Pharmacopœia.

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PHYSICIANS AND CLEANLINESS.

"In an article in the *Southern Medical Journal*, an abstract of which appears in this issue, Dr. Charles Wardell Stiles severely criticises certain physicians with whom he has come in contact for a want of cleanliness in their offices, and for lack of careful observance of the rules of general hygiene. He says that inasmuch as physicians constantly advocate health legislation, they should be prepared to set a proper example of cleanliness for the laity. His contention is supported by numerous instances, which he cites, of the shortcomings of physicians in this respect in connection with their offices, their homes and their conduct in public meetings. Stiles' experience is no doubt unusual and his criticism is probably applicable only to the careless few. It is true, however, that physicians should set an example for the public in hygienic matters, and that they should be almost over-scrupulously clean for