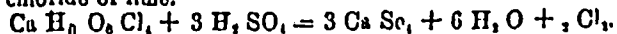


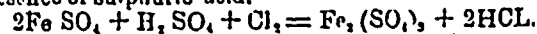
chlorination as in the first experiment. Roasting with salt is advantageous when the ore contains lime, calspar, talc or heavy spar, as it saves chlorine in future operation by converting these minerals into chlorides.

Chlorination in Barrels.—Laboratory experiments analogous to this operation may be carried out by the use of mineral water bottles or on a larger scale by using circular stoneware footwarmers.

The chlorine is generated in these bottles by the action of sulphuric acid on chloride of lime.



Although the above formula represents a good bleaching powder, it is liable to vary considerably and as it is necessary to know how much chlorine it takes to convert the whole of the gold into chloride an estimate of the available amount of chlorine in the chloride of lime used must be made. This may be done volumetrically by titration with ferrous sulphate in the presence of sulphuric acid.



Potassium ferri-cyanide is used as an indicator to tell when the reaction is complete. It is most important that the ferrous sulphate should be free from any ferric sulphate and also that the potassium ferri-cyanide should be good, and a solution of this salt must be made as it is wanted because in a state of solution it rapidly undergoes decomposition and is rendered useless, only a very weak solution is required. To make this solution take one crystal, wash it and dry it with a cloth, then dissolve it in about fifty times its weight of cold water. For the estimation weigh out 3 lots of Fe SO₄ of one gramme each, place these lots of ferrous sulphate in three flasks and dissolve in a little water, add a little sulphuric acid and warm. Next weigh out 10 grammes of chloride of lime put in a 1,000 c.c. flask and add distilled water up to the 1,000 c.c. mark, then put the stopper in and shake well for some time, when thoroughly mixed with the water (it will not dissolve) fill a 100 c.c. burette with the liquid.

Take a piece of clean white porcelain or a white plate and with a glass rod put several separate drops of the potassium ferri-cyanide solution on the porcelain, now run into one of the flasks containing the ferrous sulphate some of the chloride of lime solution little by little and keep up a rotary shaking to the flask, take out a drop on a glass rod after each addition of chloride of lime solution, just touch one of the drops of potassium ferri-cyanide solution on the porcelain plate it should give a blue coloration (unless too much of the solution has been run in), which will become gradually more and more faint as the necessary quantity to be run in approaches, when on the addition of 1 c.c. of the chloride of lime to the solution the color ceases; read off the amount run in.

Take the next flask and proceed in the same way, only this time run in at once just about 3 c.c. less than the quantity used in the first reaction, and then add drop by drop until the blue coloration ceases, repeat the experiment with the third flask, and if they have been accurately done, the whole three should agree, if not, the whole experiment must be repeated until all three titrations are approximately the same.

Now, to calculate the result. Every c.c. of the chloride of lime solution contains—

.1 gramme of chloride of lime.

Atomic weight of Fe SO₄, 7H₂O = 278.

“ “ Cl = 35.5.

W=weight of chloride of lime required to oxidize one gramme of Ferrous sulphate to Ferric sulphate, then

$$\frac{W \times 35.5 \times 100}{278} = \text{amount per cent of available chlorine in chloride of lime.}$$

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It is necessary to weigh out the chloride of lime as rapidly as possible, because it soon absorbs moisture, which will materially alter the result. The best chloride of lime contains about 35 per cent of available chlorine.

For the experiment of chlorination in bottles, weigh out one pound of the roasted ore passed through a “60” sieve, the assay of which must be known, then weigh out sufficient chloride of lime to give about 3 per cent of available chlorine, place the chloride of lime in the bottle, then put in the ore and add sufficient water to make it into a thick mud, next weigh out about 1 per cent of sulphuric acid, dilute with double its weight of water and pour it into the bottle, cork quickly and wire the cork down and keep the bottle well shaken for about six hours; then uncork the bottle, if there is an excess of chlorine present, and there should be a slight excess, it will soon be evident by its irritating smell; wash the contents of the bottle out into a large filter paper and well wash. When the ore has been washed free from chloride of gold, the next operation consists of extracting the silver if sufficient was originally present in the ore to pay for extraction. The silver will have been converted into chloride by the action of the gas and may now be extracted by leaching with a hot solution of strong brine or a cold fairly dilute solution of hyposulphate of soda, from which it may be recovered by one of the methods described. The ore must now be thoroughly washed, dried and the tailings assayed. If the tailings contain gold and there was an excess of chlorine when the bottle was uncorked, the experiment must be repeated with the ore in a finer state of division and another one in the same state of division, but for a longer time. If, on the other hand there was not an excess of chlorine, it must be repeated, using more chloride of lime and sulphuric acid, the proportions being about two of acid to one of chloride of lime.

If the experiment has been successful, two more should be started, one using less chloride of lime and another the same quantity, only for a shorter time—say four hours. Experiments may also be tried by giving the ore a roasting with salt, in the manner already described, before chlorination, also by pumping air into the bottle before corking to increase the pressure and many other little variations.

A VICTORIA CO. MIRACLE.

HOW TWO SUFFERERS REGAINED HEALTH AND STRENGTH.

Mr. and Mrs. Jas. Lawson tell the Story of their renewed Health and Strength—They find Health after Many Remedies had Failed.

From the Woodville Independent.

The Independent has published a number of well authenticated cases of most remarkable cures by the use of Dr. Williams' Pink Pills for Pale People. Many of these cures have occurred in our own province, and all of them have been vouched for by newdealers of well-known standing, whose disinterestedness leaves no room to doubt the accuracy of the statements made. But if anything were needed to convince the skeptical among our readers (if any there be,) and bring into greater prominence the surpassing merit of this wonderful life-giving remedy, it is found in the fact that the Independent has been able to give the particulars of several remarkable cures in our own neighborhood, every detail of which can be easily verified by any interested in so doing. A short time ago we gave the particulars of the recovery of little George Veal, which has attracted so much notice and added to the fame of Dr. Williams' Pink Pills in this locality. A few days ago this case was the topic of conversation in one of our local stores, when a gentleman present said he knew of a case in town even more surprising. The Independent, alert for anything that would interest its readers, asked for some further particulars, and was informed that the person referred to was Mrs. James Lawson, an esteemed resident of Woodville, who had been utterly helpless for a time, her recovery despaired of, and who is now, through the almost magical virtues of Dr. Williams' Pink Pills, recovered and able to be about once more. A few days after this, meeting Mr. Lawson on the street, The Independent inquired if it was true, as stated, that his wife owed her recovery to the use of Dr. Williams' Pink Pills. Yes, replied Mr. L., and not only my wife but I was cured by them also. If you will call at the house you can have the full particulars if you want them. Mr. Lawson has been a resident of Woodville for over twenty years, and is well known and highly respected by all. On calling at his house we found both Mr. and Mrs. Lawson at home, and quite willing to give the desired information. They are an intelligent couple, and those acquainted with them will have no hesitation in giving implicit confidence to their statements. Mr. Lawson stated that he had been ailing for years; his appetite failed; he became weak and unable to work. He received medical assistance, but found it of no avail, and at last he was confined to the house with little prospect of recovery as was thought. He had read of the wonderful cures effected by Dr. Williams' Pink Pills and determined to give them a trial. He soon found benefit from them, and continuing their use entirely recovered and is now enjoying better health than he has previously done for years, and is quite as able as formerly to do a day's work.

Mrs. Lawson also told of her terrible sufferings. For three years she had been unable to do housework, and for nine months was confined to her bed,

being so helpless that she had to be lifted like a child. She had consulted doctors in Toronto and taken their prescriptions, but found no relief. Her nervous system was wholly unstrung, and she suffered from disease of the spine. The doctors told her it would be necessary to perform an operation on her spine, otherwise she could not get relief. She refused to have the operation performed, knowing that it would make her a cripple for life, and she considered that condition as bad as her then state of suffering. At last she began the use of Dr. Williams' Pink Pills, and had not been taking them long when she found their good effects. She found herself getting stronger, and was able to walk freely, but to attend to her household duties as formerly. In fact she says she is now stronger than she has been for many years. Her appetite has returned, her nerve and spine troubles have disappeared, and she rejoices in complete recovery, which she attributes solely to the use of Dr. Williams' Pink Pills, and which she recommends to those troubled with nervous prostration, diseases of the spine or general debility. Both Mr. and Mrs. Lawson attribute their recovery under Providence to the use of this marvellous medicine which has been such a blessing in our land, and they are willing all others should enjoy the knowledge of their wonderful virtue.

Dr. Williams' Pink Pills are a perfect blood-builder and nerve restorer, curing such diseases as rheumatism, neuralgia, partial paralysis, locomotor ataxia, St. Vitus' dance, nervous headache, nervous prostration and the tired feeling therefrom, the after effects of a grippe, influenza and severe colds, diseases depending on humors in the blood such as scrofula, chronic erysipelas, etc. Pink Pills give a healthy glow to pale and sallow complexions, and are a specific for the troubles peculiar to the female system, and in the case of men they effect a radical cure in all cases arising from mental worry, overwork or excesses of any nature.

These Pills are manufactured by the Dr. Williams' Medicine Co., Brockville, Ont., and Schenectady, N. Y., and are only sold in boxes bearing the firm's trade mark and wrapper, at 50 cts. a box, or six boxes for \$2.50. Bear in mind that Dr. Williams' Pink Pills are never sold in bulk, or by the dozen or hundred, and any dealer who offers substitutes in this form is trying to defraud you and should be avoided. The public are also cautioned against all other so-called blood-builders and nerve tonics, put up in similar form intended to deceive. They are all imitations, whose makers hope to reap a pecuniary advantage from the wonderful reputation achieved by Dr. Williams' Pink Pills. Ask your dealer for Dr. Williams' Pink Pills for Pale People, and refuse all imitations and substitutes.

Dr. Williams' Pink Pills may be had of all druggists or direct by mail from Dr. Williams' Medicine Company from either address. The price at which these pills are sold makes a course of treatment comparatively inexpensive as compared with other remedies or medical treatment.