

## TECHNICAL DATA DEAD SEA SALTS

The therapeutic effects of bathing in the Dead Sea were well known even in times of antiquity. Galenus, for instance, stated that this salt water was good for the treatment of rheumatism, and the Jewish Roman historian, Flavius, wrote 2000 years ago- “ The Dead Sea cannot be praised too highly.....travelers take as much of this salt, as they are able to, home with them, because it heals the human body and is therefore used in many medicines.”

The waters of the Dead. Sea are unique compared to other seas and lakes, first and foremost, due to the high concentration of salts reaching 27% compared to 3% in ordinary sea water. The composition of the Dead Sea salts is also unique. Whereas in ordinary sea water sodium chloride (common salt) is the major constituent (about 80% of the total salt content) the Dead Sea on the other hand contains a considerable smaller proportion of sodium chloride, the balance consisting of magnesium, potassium and calcium chlorides and a comparatively high concentration of bromides. It is believed that the therapeutic properties of the Dead Sea are due to a large extent to the presence of these other salts, mainly those of magnesium, potassium and bromide.

These special chemical composition and special climatic conditions help make the Dead Sea an ideal spot for the curing of rheumatic and certain skin diseases.

The Government of Israel has encouraged the establishment of modern, first class hotels on the shore of the Dead Sea, to enable people suffering from rheumatic and skin diseases from all over the world to come and obtain treatment with full comfort. Advanced medical care and clinics are available on the spot.

Dead Sea salts are a mixture of bath salts which contain the important salts of the Dead Sea. The mixture is obtained by fractional evaporation and crystallization of Dead Sea salts from the brines. This process enriches the therapeutically valuable potassium and magnesium salts, while retaining all the other mineral elements of the Dead Sea. The bath salts contain no additives and are of excellent bacteriological quality.

## DEAD SEA BATH SALTS

PHYSICAL PROPERTIES : Off-white to light brown substance, heterogeneous mixture of crystals and powder; odorless.

Bulk density: 0.7-0.8

Water soluble: approximate solubility, 60 gr substances in 100 ml water (20°C), a cloudy solution is obtained.

### TYPICAL ANALYSIS:

KCl	22.0	- 28.0%
NaCl	8.0	18.0%
CaCl 2	0.3	- 0.7%
MgCl 2	30.0	- 34.0%
H <sub>2</sub> O (water of crystallization)	26.0	- 30.0%
Br	0.2	- 0.4%
SO <sub>4</sub>	0.1	- 0.2%
Insoluble	0.2	- 0.9%

### DIRECTIONS FOR USE:

For a standard bath of warm water, about 1.5 Kg (3.3 lb.) of Dead Sea Bath Salts should be added.

For partial baths or hot tubs, higher concentrations up to 6-8% of the total water volume may be prepared.

Heavier concentrations should be used only according to medical instructions.

### HANDLING AND PACKAGING:

Dead Sea Bath Salts are composed of natural hygroscopic minerals found in the Dead Sea. For this reason, they should be exposed to as little air contact as possible.

After use, close securely so no air can penetrate.

When repacking, keep air exposure down to a minimum and seal the filled bags as soon as possible.

The Salts are beneficial to the skin. However, persons with open skin wounds on their hands should wear gloves when handling the salts.

## DEAD SEA SALTS THERAPY

In order to ascertain and confirm the beneficial therapeutic effects of Dead Sea Bath Salts, a series of clinical research projects have been carried out both in Israel and in other countries where the use of the salts has become an established practice.

Dr. I. Machtey (1) studied the influences of Dead Sea Bath Salts on rheumatic patients suffering from osteoarthritis or a localized type of tendinitis. 103 patients were treated for one or two weeks with daily Dead Sea Bath Salts in a sanatorium located about 400 meters above sea level. The patients were randomly assigned to one of three types of baths (three sub groups):

1. Bath treatment with a Dead Sea salt concentration of 7.50%
2. Baths with a 2% salt concentration.
3. Baths with a 0.50% salt concentration.

One week of proper treatment: resulted in impressive improvement in all parameters in patients receiving 7.5% and 2% bath salt concentration, but little or no improvement was noted in those treated with 0.5% salt concentrations. The greater the physical limitations, the more pronounced was the improvement.

Sixty-six patients received two weeks treatment. An additional, slight improvement was noted in patients treated with 7.5% or 2% salt concentration, and those having only 0.5% salt baths improved relatively more as compared with the results after the first week of treatment. However most of the results in the 0.5% group were less impressive than those in the higher concentrations.

Over 80% of all the patients reported having less pain, 70% said their mobility improved, and about 60% were able to decrease their use of analgesics. Dr. Machtey concludes his study by stating that "There is little doubt that the Dead Sea treatment in those who benefit from it can be extended and repeated at home using a 2% bath solution, which is both economical and readily available".

A similar study was carried out by Dr. P. Engel (2) from the sanatorium clinic in the City of Mayenbad, Bad Waldsee, in Germany. The study was performed with 60 patients whose rheumatic discomfort could not be substantially reduced by the customary Balneotherapy of their clinic. The baths with Dead Sea Salts were then prescribed in lieu of additional medicinal therapy. Each patient was treated for a duration of 4 weeks, with three baths per week. Salt concentration was 2.5%, duration of bath 20 minutes, temperature of water 37 °C. Parameters examined included: Pain at rest, spontaneous pain, kinesiopia, pain on pressure and reduced mobility.

A summary of the results shows that in 76.2% of the cases, very good therapeutic results were obtained, 10.2% responded moderately well and only 13.6% no success was noted.

Dr. J. Arndt. From Germany (3) made a study of the effect of Dead Sea Bath Salts on patients suffering from psoriasis. Fifty patients, aged between 14 and 77 years were treated with the salts in a controlled way. Treatment consisted of partial or total baths. For a total bath, 2 Kgs (4.5lbs) of the salts were dissolved in a bath at a temperature

## DEAD SEA SALTS THERAPY (continued)

of 27°C. The partial baths were made with a concentration of about 10%. The baths lasted for 20 minutes and afterwards the skin was thoroughly rinsed with running water. The effect is enhanced when the patient remains in a warm packed condition for one hour after the bath.

The treatment lasted for 3 weeks, with 3-4 baths per week. The results show that most symptoms of the illness diminished within one week of treatment, notably itch, scaling joint complaints, and the falling asleep and sleep through difficulties. Other parameters such as spread, redness and infiltration decreased somewhat more slowly. Improvement was steady - the four week treatment left the patients essentially free from complaints.

Dr. Arndt points out that of particular importance from the patient's point of view is the rapid relief from such irritating a symptom as itching. There is a corresponding relief from sleeping disturbances, which were rather wide-spread prior to treatment. The drastic decrease in scaling within one week can be interpreted by physician and patient alike as a further proof of the course outlined above:

Healing was total in 27 patients (54%), whereas in 22 cases there was a marked impressive improvement. Tolerance was excellent in all 50 cases. There were no side effects whatsoever, dermatological or otherwise.

(1). "Dead Sea Balneotherapy in Osteoarthritis", Dr. Machtey ( Hasharon Hospital, Petach-Tikva, Israel). Published in "Proceedings of International Seminar on Treatment of Rheumatic Diseases". John Wright \ PSG Inc. (1932).

(2). "On the Therapy of Rheumatic Illnesses with Medical Bathing Salts from the Dead Sea", Dr. Paul Engel (Sanatorium Clinic of the City of Mayenbad, Bad Walsee, FRG). Published in Acta Medica Empirica, 31, 374 (April 1982).

(3). "Salt from the Promised Land Help Psoriasis Patients" Dr. J. Arndt, Published in Arztliche Praxis, Vol 34, No. 48 1920. Republished 6/15/82.