# فهرست گزیده مقالات
# در
# شیمی

ب ـ شیمی عملی

از شماره ۲۳ تا ۴۷

دوره سوم

شماره ۳

مرداد ۱۳۵۲

مرکز مدارک علمی
مؤسسه تحقیقات و برنامه ریزی علمی و آموزشی

مقـــــدمـــــــه :

مقاله نامه شیمی بخش " ب " به منظور آشنا ساختن محققین و متخصصین شیمی صنعتی وشیمی تکنیکی با تازه ترین اطلاعات در زمینه های مذکور منتشر میگردد . این مقاله نامه حاوی چکیده و فهرست مقالاتی میباشد که از مجلات رسیده به کتابخانه مرکز مدارك علمی استخراج شده است .

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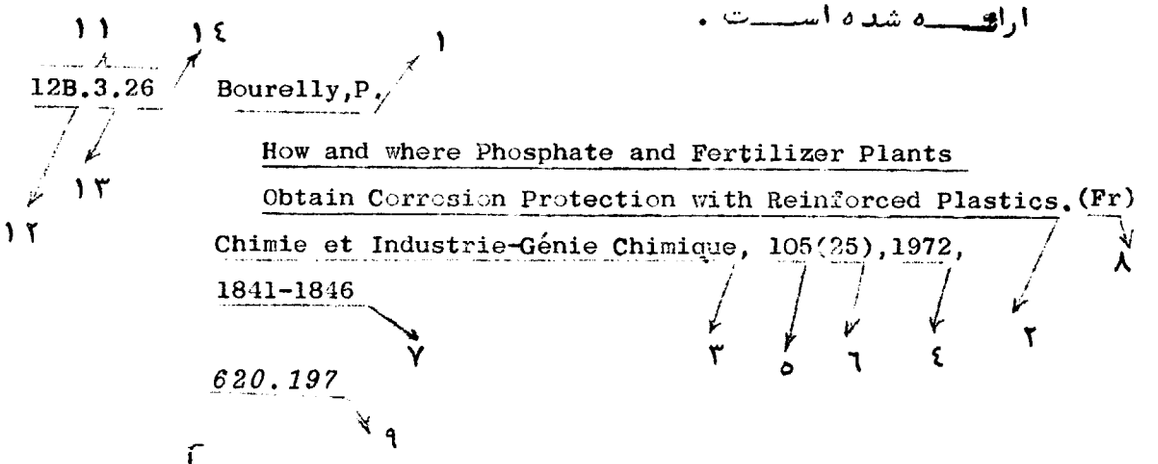


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# Selected Bibliography of Chemistry

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## Aim and Scope

This bulletin will provide a quick and updated means of familiarizing one with the significant advances in the field of technical and industrial chemistry.

It contains indexes, author summaries and abstracts . The original articles are available in the Library of the Iranian Documentation Centre.

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The articles are classified according to the UDC System.

*620.193/.197 Corrosion*

12B.3.23 Palmer, J.D.

Avoiding Corrosion in Heat Transfer.

Canadian Chemical Processing, 57(1), 1973, 46 -48

*620.193[66.04]*

Damage by boiler or cooling waters is often considered a rather mundane problem but proper attention to this area can result in lower costs and more efficient operation.

12 B.3.24 Palmer,J.D.

Inhibitors: Think Before you add them.

Canadian Chemical Processing, 57(2), 1973, 58-60,62

*620.193[66.097.7]*

When properly used, film-formers and other additives can reduce corrosion dramatically but these same chemicals can actually increase deterioration in some circumstances.

12B.3.25 ———.

Non-Toxic, Non-Polluting Corrosion Inhibitors.
Chemistry & Industry, (9),1972,May,

*620.193*

Information on the use of sodium molybdate compounds as non-toxic, non-polluting corrosion inhibitors for commercial, industrial, and other water cooling systems, is available in a new brochure from Clumax Molybdenum Company. The materials are recommended for use in water cooling systems of large commercial air conditioning equipment, as well as in industrial cooling and heating processes where aqueous corrosion is a problem. Materials are compatible with glycol and other media.

12B.3.26 Bourelly,P.

How and where Phosphate and Fertilizer Plants Obtain Corrosion Protection with Reinforced Plastics.(Fr)
Chimie et Industrie-Genie Chimique, 105(25), 1972, 1841-1846

*620.197*

The phosphate industry encounters many extremely corrosive chemicals that can cause premeture failure

and excessive costs in plant equipment. The author describes the use of GRP equipment based on ATLAC bisphenol fumarate resin in the phosphate industry. The industry utilizes reinforced plastic equipment in fume handling (hoods, ducts, scrubbers), processing and piping in order to avoid corrosion problems.

## *621.3 Electrical Engineering*

12B.3.27 Sadre,M.

Notes on Selection of Supervisory Control System for Oil Industry Installations.

Journal of the Iranian Society of Engineers,(43),1969, 16-25

*621.316:665*

12B.3.28 Lemon,T.H.

Thick-Film Ruthenium Resistor Pastes.

Platinium Metal Review, 17(1), 1973, 14-20

*621.316.8Ru*

New and improved compositions of pastes for ruthenium resistors have been developed at the Johnson Matthey Research Laboratories. Evaluation of the properties of such resistors shows that these materials are suitable both technically for use in circuits designed for the domestic electronics market. This article is based on a paper given at Internepcon 72, Brighton, last October.

*633.1 Cereals*

12B.3.29 Abdoh,Y.;Khorgami,M.H.;Kowsar-Nechan,M.T.
Spectrophotometric Determination of Traces of Iron in Cereals. The Use of Benzohydroxamic Acid.
Lebensmitted-Wissenschaft und Technologie, 5(6), 1972

*633/1:543.42.064Fe*

12B.3.30 Ranhotra, G.S.;Hepburn,F.N.;Bradley,B.
Effect of Fiber on Availability of Protein from Wheat Shorts.
Cereal Chemistry, 48(1), 1971, 9-13

*633.11:547.96*

The effect of the level and the particle size of fiber on the availability of protein from shorts was studied. On a 10% protein diet, the rate of growth and PER tended to be somewhat higher in rats fed ground shorts (70 mesh;fiber about 10%) and was much higher in those fed wheat protein concentrate (70 mesh;fiber about 3%) as compared to coarse shorts (15 mesh;fiber about 10%). Also, despite somewhat low lysine intake (0.83 vs.0.88 g.), more nitrogen was retained by rats fed wheat protein concentrate than coarse shorts (116

vs.100%). Between the coarse and ground shorts, rats fed ground shorts also retained more nitrogen (109 vs. 100%). Protein digestibility of the two shorts did not differ but it was significantly higher for wheat protein concentrate (83 vs.71%). The pattern of plasma-free amino acids tended to reflect the quality of ingested protein more closely for wheat protein concentrate and ground shorts than for coarse shorts.

*648.18 Washing Materials*

12B.3.31 Chalmers,L.

Household Chemicals.

Manufacturing Chemist & Aerosol News, 43(10), 1972, 36-40

*648.18*

New silica builder detergents and less alkaline polysilicate builders are among the topics discussed in this progress report

- Silica versus phosphate
- New silica builder-detergent
- Evalution of cleaning data
- Ecological Aspects
- Less alkaline builder
- Silver cleaner
- Heavy duty hand cleaners
- Dishwasher rinse aids
- Heavy duty cleaners
- Paint remover from contact lens polymer
- Paint stripping composition
- Emollient gel for dry skin
- Hand lotion with anti-dermatitic properties

12B.3.32 Chalmers,L.

Household Chemicals.

Manufacturing Chemist & Aerosol News, 44(1), 1973, 48-50

*648.18*

New line soap dispersants and their application in soap bars are among the topics discussed.

- New Non-toxic insecticides
- Fatty amine development
- New lime soap dispersants

## *661.18 Colloidal & Surface- Active Chemicals*

12B.3.33 Schwitzer,M.K.

The Application of Cationic Surface Active Agents.

Chemistry & Industry, (21), 1972, Novembre, 822-831

*661.185*

12B.3.34 Golden,L.S.;Irving,J.

Osmotic and Mechanical Strength in Ion-Exchange Resins.

Chemistry & Industry, (21), 1972,Novembre, 837-844

*661.183.12[532.71]*

It has been shown how mechanical and osmotic forces are likely to affect the physical stability of a resin bead, and how this effect can be measured for a given resin. Mechanical forces are, on the whole, not strong enough to damage a perfect bead, gel or macroporous. If osmotic forces are set up, these are sometimes considerably stronger than a bead is capable of withstanding and cracked beads can result. Although only very fragile resins are likely to be completely broken by osmotic forces alone, a resin bead severely weakened

by this means will then be much more liable to breakdown by mechanical forces, in particular the higher forces set up in high flow rate conditions.
The resin required for any specific purpose must be considered in the light of the physical operating conditions it is likely to encounter, assuming of course that it has the appropriate ion-exchange characteristics. There is no need to find a 'super' resin if this is not really required. Some resins may have good mechanical strength but may quickly break down on cycling with 5 per cent acid/alkali. However, such resins can still, for instance, be used perfectly satisfactorily in high flow rate plants provided no severe osmotic conditions will be encountered. Conversely, they could still be used in systems where they are likely to be subjected to osmotic stress provided external mechanical forces are low (i.e.in low flow rate plants). Often, a combination of both mechanical and osmotic stability is obtained at the sacrifice of some advantageous chemical properties. In applying the tests, appropriate safety factors should be included, and certain features noted such as the presence of faulty beads which might give rise to trouble as the resin ages. The limits of failure in both mechanical and osmotic tests should be small, since a build up of broken or powdered material will increase pressure loss and consequently subject

remaining material to even greater stress. It is, therefore, the beads of minimum cracking values within a given size range which should be considered as it is these which will break down first. Average values are useful for comparison with other resins and to get a general overall picture. Bearing these points in mind and interpreting the results carefully, the tests described in this paper, designed primarily to give comparative data on resins, can provide a substantial amount of information about the mechanical and osmotic properties of ion-exchange resins.

*664.12 Sugarbeet Industry*

12B.3.35 Huffaker, A. ; ,Fieldman, N. ; Oldemeyer,D.
Fertilizer Guidelines for Sugarbeets.
Sugar Journal, 34(1), 1971, 13-14

*664.12:631.8*

- Soil Testing
- Nitrogen
- Phosphorus
- Potash
- Micronutrients
- Crop Residues

12B.3.36 Schweizer,E.E.
Herbicidal Activity of Chloroacetamides and Pyridazinones on Sugarbeets and Weeds.
Journal of the American Society of Sugar Beet Technologists, 16(5), 1971, 359-367

*664.12:632.945*

The chloroacetamides controlled foxtail millet the best, whereas the pyridazinones were more effective against common lambsquarters and wild buckwheat. Both

groups of compounds controlled pigweed effectively, but not kochia. The herbicides BAS 2430 and delachlor surpassed the standard herbicide cycloate in reducing the average stand of all five weeds, and yields of roots and sugar were equivalent to that produced in plots treated with cycloate or hand-weeded. Residues of BAS 2430, delachlor, and pyrazon were detected biologically in soil 8 months following application.

12B.3.37 Wyse,R.E.;Dexter,S.T.

Effect of Agronomic and Storage Practices on Raffinose, Reducing Sugar, and Amino Acid Content of Sugarbeet Varieties.

Journal of the American Society of Sugar Beet Technologiests, 16(5), 1971, 369-383

*664.12[547]*

The accumulation of raffinose in sugarbeet roots during growth and storage was primarily a function of temperature, increasing with lowered temperature either in the field or during storage. The threshold temperature for raffinose accumulation in roots during storage was approximately 5°C, but this varied somewhat between years and greatly between varieties. Beets harvested in September and early October were lower in raffinose content than beets harvested late, but

the beets harvested early accumulated more raffinose in storage. Nitrogen fertilization had no effect on on raffinose content at harvest or after storage. Reducing sugar accumulation in roots was accentuated by mold. However, the variety-temperature interaction for reducing sugar accumulation was highly significant when mold and sprouting were eliminated. In the absence of mold, reducing sugar increased more in higher temperature (3 vs 10°C) storage. The amino acid content of the beets was primarily a function of applied nitrogen. The variety-nitrogen interaction was highly significant at harvest but not after storage. most varieties stored at 3°C generally declined in free amino acids. All varieties accumulated approximately 30% more amino acids when stored at 10 C than when stored at 3°C. Varietal consistency from year to year could not be demonstrated conclusively because only one variety was studied in more than one year. However, this variety did show very consistent trends for all three major impurities. With the exception of the amino acid content, less than ideal storage practices were found to have a much greater effect on the chemical composition of beets than did agronomic practices. In storing beets at various temperatures, varieties differed considerably with respect to the level of raffinose, reducing sugars, and amino acids in the clarified juice.

Since these compounds make up the major proportion of the non-sucrose constituents of the clear juice, it would appear that the level of these impurities could be controlled through variety improvement and proper agronomic and storage practices. The development of a variety which would tolerate storage temperatures in the 7-10°C range without the accumulation of reducing sugars or amino acids, assuming that sprouting is prevented, appears to be feasible and would greatly reduce the problem of storage temperature control.

12B.3.38 Ruppel,E.G.;Gaskill,J.O.

Techniques for Evaluating Sugarbeet for Resistance to Cercospora beticola in the Field.

Journal of the American Society of Sugar Beet Technologists, 16(5), 1971, 384-389

*664.12[63]*

Techniques used in the field at Fort Collins, Colorado, for creating uniform epiphytotics of Cercospora leaf spot and for evaluating resistance of lines and individual plants may be summarized as follows:

1. Dried, Cercospora-infected leaves from sugarbeet

lines varying widely in degree of resistance are used for inoculum preparation.

2. Source leaves are wetted and rubbed together by hand in water to free spores. The resultant spore suspensions are diluted with water and sprayed on beet foliage at 100 psi and a rate of approximately 50 gal/acre.
3. Foliage is kept wet for 2 to 3 days after inoculation by intermittent overhead sprinkling.
4. Sprinkling for 2 or 3 days a week is resumed soon after the symptoms of primary infection appear (ca. 2 weeks after inoculation).
5. The most reliable disease ratings usually are made when the epiphytotic is at its peak, about 5 to 8 weeks after inoculation. By this time disease intensity has advanced substantially beyond that resulting from primary infection.
6. Ratings are based on a scale of 0 to 10, with 0= no apparent infection and 10= complete defoliation.
7. Since amount and quality of light affect the appearance of infected plants, whole experiments or complete replications are rated under similar lighting conditions.
8. Six-foot bamboo canes are used to stake individual resistant plants in segregating populations for selection purposes. Staking is performed when the epiphytotic reaches a severe stage. Subsequently, the staked plants are reexamined, and canes are removed from those individuals that appear to have insufficient resistance.

Number of spores applied per linear foot of row of beets has varied from $2.5 \times 10^5$ in 1969 to $1.7 \times 10^6$ in 1970. Satisfactory epiphytotics occurred in both years. Spore counts in 1970 of stock suspension and diluted inoculum indicate $99.3 \times 10^4$ and 21 to 23 $\times 10^4$ spores/cc, respectively. Viability tests indicated only 2% spore germination in the stock suspension, whereas 49% of the spores germinated in the more dilute inoculum.

12B.3.39 Wyse,R.E.;Dexter,S.T.

Source of Recoverable Sugar Losses in Several Sugarbeet Varieties During Storage.

Journal of the American Society of Sugar Beet Technologists, 16(5), 1971, 390-307

*664.12[631.563]*

Storage of several sugarbeet varieties without desiccation at 3°C and very little mold indicated substantial differences in their storage characteristics based on losses of RSPT. However, high yields of recoverable sugar per ton after storage were dominated, not by low storage losses but by high yields at harvest. The losses in recoverable sugar were about equally divided between direct loss of sucrose by respiration and sugar conversion, and the accumulation of non-sucrose compounds in the clear juice.

Raffinose, reducing sugars, and the amino acids accounted for approximately 80% of the impurities which accumulated during storage. Although the impurity content was approximately the same at both 3 and 10°C for the three varieties tested, qualitatively the content was very different. Reduction in clear juice purity (and consequently lower percent recovery) at higher temperatures resulted more from the respirational loss of sucrose than from increased impurities. At 3°C raffinose accounted for 34% of the total impurities after 100 days of storage. At 10°C reducing sugars, amino acids, and some unknown impurities predominated. The higher raffinose accumulation at lower temperatures was more or less balanced by the increased invert sugar and amino acid at higher storage temperatures. These qualitative differences were significant in terms of processing characteristics.

12 B.3.40 Vlamis,J.;Ulrich,A.

Boron Nutrition in the Growth and Sugar Content of Sugarbeets.

Journal of the American Society of Sugar Beet Technologists, 16(5), 1971, 428-438

664.12[631.8 ]

Sugarbeet seedlings were transplanted from boron-free vermiculite to a series of eight nutrient solutions ranging from 0.5 ppm boron to lesser amounts in multiples of one half. An additional series received zero boron. All treatments were replicated five times. Distilled water and C.P. grade of salts were used. The plants were grown in painted, 5-gallon containers, each containing three seedlings supported on masonite lids. Aeration was provided by means of soft glass tubing. The plants were harvested 7 weeks after transplanting and symptoms had appeared in six of the treatments. The shoots were divided according to physiological age-young, mature and old leaves, and further separated into blades and petioles. The tissues were analyzed for B, Ca, Mg, K, nitrate-N, phosphate-P and sulfate-S. The storage roots were separated from the fibrous roots and analyzed for sucrose. The mature blades were found to be the most suitable tissues for assessing the B status of sugarbeet plants by virtue of a sharp separation of deficient from sufficient status, minimum variability and least interference from the Piper-Steenbjerg effect. The critical concentration of B in oven-dried mature blades was found to be in the range of 15 to 30 ppm. The blades had a higher B content than the petioles where the B supply was adequate but this relation was reversed in the deficient plants. The highest values of B occurred in the older leaves. The lowest B content was in the fibrous and storage roots. The

amount of Mg and K was highest in the most deficient plants and leveled off when B reached an adequate level. This was interpreted as a dilution effect. A reversal of this situation was shown by Ca which reached the lowest levels in the deficient plants. Storage and fibrous root growth paralled the development of the shoot. The sucrose content of the storage roots started to decrease at about the same point where limiting B resulted in a drop in yield.

12 B.3.41 Sipitanos, K.M.;Ulrich,A.

The Influence of Root Zone Temperature on Phosphorus Nutrition of Sugarbeet Seedlings.

Journal of the American Society of Sugar Beet Technologists, 16(5), 1971, 408-419

*664.12[631.81]*

Sugarbeet seedlings were grown in the greenhouse at soil temperatures of 5,10,15,20,25, and 30° C in pots containing Imperial silty clay, a soil with a pH of 7.95 and testing intermediate in phosphorus, with a $NaHCO_3$ soluble-P of 8.8 ppm. Soil temperature greatly influenced the emergence of sugarbeet seeds, the growth of seedlings and the response to P-fertilization. The optimum soil temperature for seed emergence and seedling growth was about 25°C.

Phosphorus fertilization had no effect on emergence except at 5°C, where the P-treatments delayed emergence. Visual symptoms of P-deficiency appeared on all plants at 5, 10, and 15°C and became more pronounced with age at the low P-treatments. These plants at the early two-leaf stage showed symptoms resembling those of iron deficiency, which became less severe with increased root temperature over the range of 5 to 30° C. The relative increase in dry matter of tops from phosphorus fertilization was also higher at the third thinning in comparison with the same root zone temperature at the second thinning. Therefore, there seems to be a plant age factor in considering sugarbeet seedling response to P-fertilization. At all harvests the percentage dry matter of the tops at 5, 10, and 15°C root zone temperature seedlings decreased with increased temperature and with P-treatment. Tissue soluble P concentrations tended to increase with: a) an increase in root zone temperature up to 30°C at the first thinning, up to 20°C at the second thinning and up to 15°C at the third thinning, for the same P-treatment and b) with P-treatment for the same root zone temperature. It may also be concluded that for satisfactory growth of sugarbeet seedlings,

growing in low or intermediate P-soils, P-fertilization is needed, since the soil temperatures at seedling time usually are low. In terms of growth, seedlings with petioles from the first pair of leaves with less than 1,000 ppm of phosphorus soluble in 2% acetic acid are definitely deficient in phosphorus at the time of sampling, and those between 1,000 and 1,500 ppm are less likely to be deficient in phosphorus when sampled.

*668.58 Cosmetics*

12B.3.42 Alexander,Ph.
Cosmetics and Toiletries.
Manufacturing Chemist & Aerosol News, 1972, 43(10),44-51

*668.58*

12B.3.43 Chalmers,L.
Allergic Response and Hypoallergenic Cosmetic Products.
Manufacturing Chemist & Aerosol News, 44(1),1973, 25-31

*668.58[612.017]*

Allergic reaction is now believed to be common to all people and to differ among them only in degree. Manufacturers are likely to become more involved in dermatological studies as the demand for hypoallergenics increases.

12 B.3.44 Barry,B.W.

Structure and Rheology of Some Oilin Water Creams.

Manufacturing Chemist and Aerosol News, 42(4),1971, 27,29-30,33

*668.584:539.501*

- Structure of ternary systems and creams
- Rheological Analysis
- Continuous shear methods
- Viscoelastic methods
- Creep analysis
- Oscillatory analysis
- Conclusion

Oil soluble component

Water soluble component

## *669.231 Platinum and Metals of the Platinum Group*

12B.3.45 Chaston, J.C.

The Purity of Platinum.

Platinum Metals Review, 15(4), 1971, 122-128

*669.231[669.962]*

Platinum as supplied to industry contains less than 200 parts per million of total impurities, and is probably the purest metal refined by chemical means alone. This article reviews the influence of individual impurities upon the properties of platinum, illustrates some of the sophisticated methods of analysis and control employed, and discusses the reasons why particular care is taken to eliminate specific impurities from platinum intended for use in certain applications.

12B.3.46 Kubaschewshi,O.

Practical Aspects of Meallurgical Thermodynamics, Applications to the Platinum Metals.

Platinum Metals Review, 15(4), 1971, 134-140

*669.231[669-971]*

Thermodynamic principles and data are very useful in the solution of industrial problems, particularly in assessing the feasibility and economics of a projected process. This article reviews the application of thermodynamics to the oxidation of platinum and to the life expectancy of platinum coatings on base metal substrates when operating at high temperatures and describes the derivation of equilibrium diagrams of platinum alloys from the thermochemical properties of the constituent phases.

12 B.3.47 Irani,R.S.

Ordering in Platinum Group Metal Alloys

Platinium Metal Review, 17(1), 1973, 21-25

*669.231.5*

The ordering of the interesting familys based on the platinum group metals has been hitherto somewhat neglected, partly due to problems of specimen preparation. Techniques used in metallographic studies on these alloys are described. Understanding of the properties of these alloys may lead to wider practical applications of them.

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12.A.3.33 Vol'pin, M.E. "The Reactions of Organometallic Compounds of Transition Metals with Molecular Nitrogen and

Carbon Diexide." Pure and Applied Chemistry, 30(3-4) 1972, 607-620

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