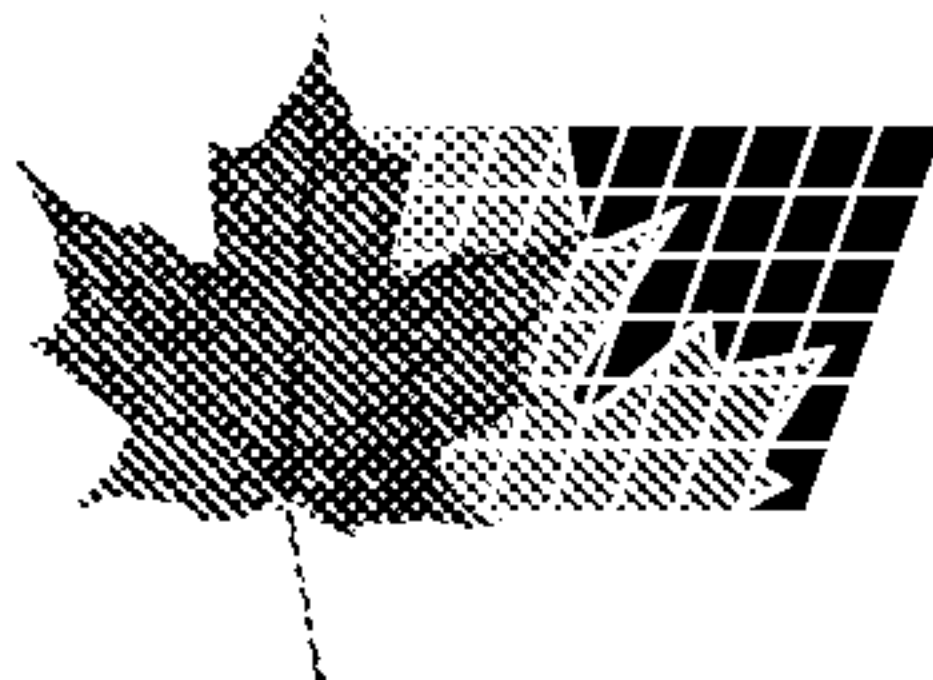




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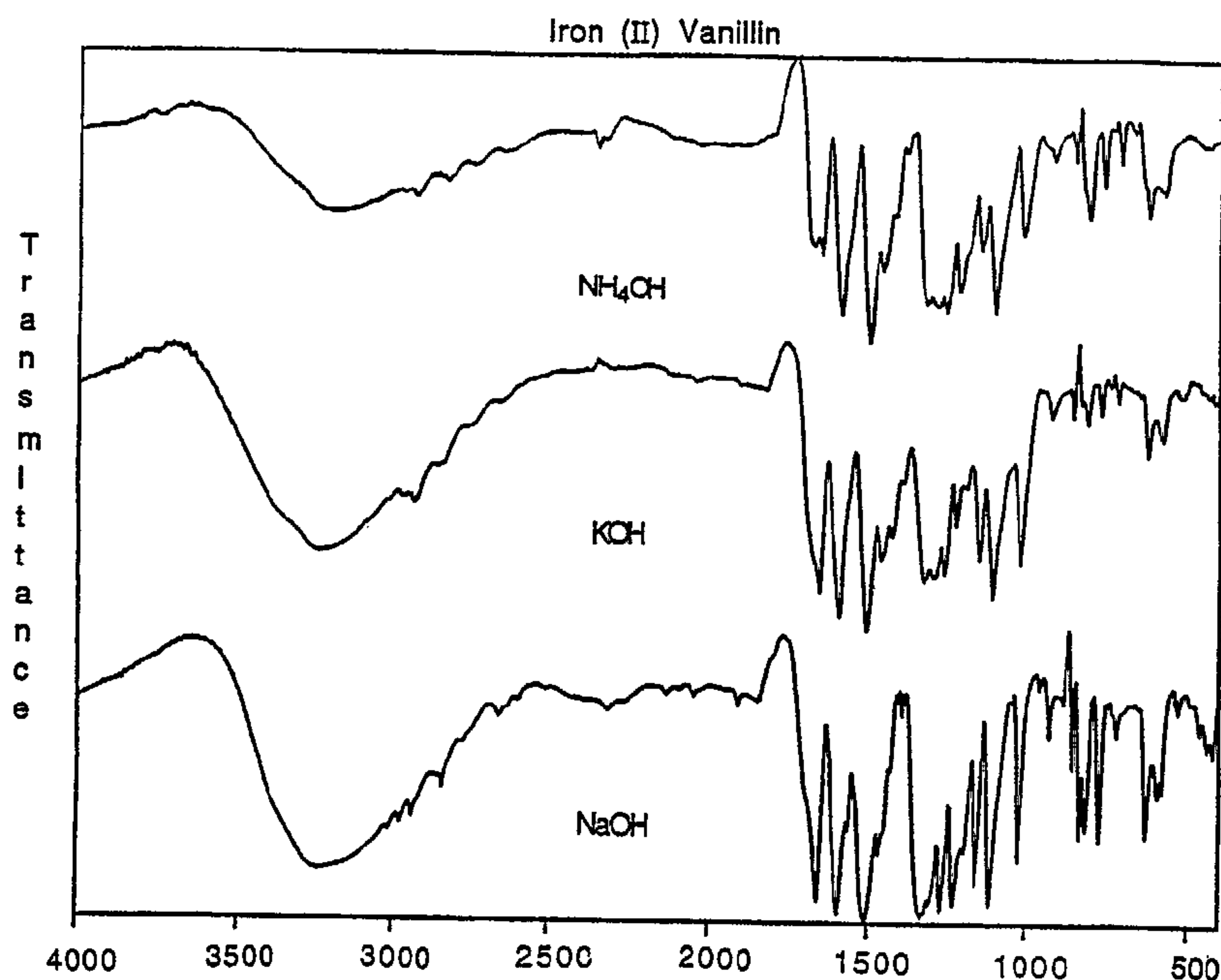
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(54) **DERIVES DE SUBSTITUTION EN 1,2 DE CHELATES
AROMATIQUES**

(54) **1,2-DISUBSTITUTED AROMATIC CHELATES**



(57) Mineral absorption is promoted in warm-blooded animals by means of a class of 1,2-disubstituted aromatic mineral chelates wherein the 1 and 2 substituents each donates a pair of electrons to a metal ion for formation of a five-member chelate ring. 2-Alkoxyphenols are particularly preferred. The chelates contain from one to three alkoxyphenol ligands, with two ligands being preferred. A preferred alkoxyphenol is vanillin, and the minerals are selected from the group consisting of Mg, Ca, Cr, Mn, Fe, Co, Cu, Zn, Mo and Se. Vanillin metal chelates have a slight to neutral taste, and are absorbed more readily than inorganic mineral salts.

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(21) International Application Number: PCT/US95/10326 (22) International Filing Date: 15 August 1995 (15.08.95) (30) Priority Data: 08/293,516 19 August 1994 (19.08.94) US (71) Applicant: ALBION INTERNATIONAL, INC. [US/US]; 101 North Main, Clearfield, UT 84015 (US). (72) Inventors: ASHMEAD, Stephen; 1322 West 2175 North, Clinton, UT 84015 (US). ASHMEAD, Harvey, H.; 719 East Center Street, Kaysville, UT 84037 (US). (74) Agents: WESTERN, M., Wayne et al.; Thorpe, North & Western, Suite 200, 9035 South 700 East, Sandy, UT 84070 (US).		(81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT, UA, UG, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, MW, SD, SZ, UG). Published 2197883 <i>With international search report.</i>
(54) Title: 1,2-DISUBSTITUTED AROMATIC CHELATES (57) Abstract Mineral absorption is promoted in warm-blooded animals by means of a class of 1,2-disubstituted aromatic mineral chelates wherein the 1 and 2 substituents each donates a pair of electrons to a metal ion for formation of a five-member chelate ring. 2-Alkoxyphenols are particularly preferred. The chelates contain from one to three alkoxyphenol ligands, with two ligands being preferred. A preferred alkoxyphenol is vanillin, and the minerals are selected from the group consisting of Mg, Ca, Cr, Mn, Fe, Co, Cu, Zn, Mo and Se. Vanillin metal chelates have a slight to neutral taste, and are absorbed more readily than inorganic mineral salts.		

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1,2-DISUBSTITUTED AROMATIC CHELATES

Background of the Invention

This invention relates to a chelated mineral composition containing 1,2-disubstituted aromatic ligands. More particularly, this invention relates to mineral chelates containing 1,2-disubstituted aromatic ligands and particularly 2-alkoxyphenol ligands, such as vanillin, and metals selected from the group consisting of Mg, Ca, Cr, Mn, Fe, Co, Cu, Zn, Se and Mo wherein the ligand to metal ratio is 1:1 to 3:1, preferably 2:1.

When a metal combines with an electron donor, a complex or coordination compound is formed. When the electron donor, also referred to as a ligand or chelating agent, contains two or more donor groups tied together in some way, the resulting complex is a chelate. The essential and characteristic feature found in all chelates is formation of a ring between the ligand and the metal atom. For ring formation to occur, the electron donor molecule must contain two or more groups that can each combine with the metal atom with formation of at least one coordinate covalent bond. Also, groups or atoms (such as oxygen, nitrogen, hydroxyl, and amino) must be present that can coordinate with the metal atom through their lone electron pair. Further, these donor groups must be separated from each other by chains of suitable length to permit formation of rings with five or six member rings being most stable. Albert E. Frost, Fundamental Aspects of Chelation, The Science Counselor (June 1956).

Amino acids comprise a group of ligands that have been used to chelate minerals. It is known that amino acid chelates form a stable product having one or more five-member rings formed by reaction between the carboxyl oxygen and the α -amino group of an α -amino acid with the metal ion. Such a five-member ring is defined by the metal atom, the carboxyl oxygen, the

