

NAMED REAGENTS, CATALYSTS, AND COMPOUNDS (A – F)

© Dr. John Andraos

Department of Chemistry, York University
4700 Keele Street, Toronto, ONTARIO M3J 1P3, CANADA

For suggestions, corrections, additional information, and comments please send e-mails to jandraos@yorku.ca

<http://www.chem.yorku.ca/NAMED/>

Roger Adams

2 January 1889 - 6 July 1971

American, b. Boston, Massachusetts, USA

Adam's catalyst (platinum oxide)

Adams, R.; Voorhees, V.; Carothers, W.H.; Shriner, R.L. *J. Am. Chem. Soc.* **1922**, 44, 1397

Adams, R.; Voorhees, V.; Carothers, W.H.; Shriner, R.L. *J. Am. Chem. Soc.* **1923**, 45, 1071; 2171

Adams, R.; Voorhees, V.; Shriner, R.L., *Org. Synth. Coll. Vol. I* **1943**, 1, 463

Biographical References:

Tarbell, D.S.; Tarbell, A.T., *Biog. Memoirs Natl. Acad. Sci.* **1982**, 53, 3

Morris, Peter Biographies of Chemists, Royal Society of Chemistry,
<http://www.chem.qmw.ac.uk/rschg/biog.html>

Homer Burton Adkins

16 January 1892 - 10 August 1949

American, b. Newport, Ohio, USA

Adkins catalyst (chromium - copper oxide)

Adkins, H.; Connor, R.; Folkers, K., *J. Am. Chem. Soc.* **1932**, 54, 1138

Adkins, H.; Burgoyne, E.E.; Schneider, H.J., *J. Am. Chem. Soc.* **1950**, 72, 2626

Biographical References:

Daniels, F., *Biog. Memoirs Natl. Acad. Sci.* **1952**, 27, 293

Momme Andresen

17 October 1857 – 12 January 1951

German, b. Risum, Kr. Süd-Tondern, Germany

Andresen's acid (3-amino-1,6-naphthalenedisulfonic acid)

Armstrong, H.E.; Wynne, W.P. *Proc. Chem. Soc.* **1891**, 7, 27

Biographical references:

Anon. *Konotechnik* **1938**, 19, 274

Anon. *Konotechnik* **1940**, 22, 162

Anon. *Photogr. Ind.* **1942**, 40, 273

Eggert, J. *Camera* **1947**, 26, 242

Anon. *Dtsch. Drogisten Ztg.* **1951**, 6, 191

Rolf Appel

25 February 1921 –

German, b. Hamburg, Germany

Appel's salt (4,5-dichloro-1,2,3-dithiazolium chloride)

Appel, R.; Janssen, H.; Siray, M.; Knock, F., *Chem. Ber.* **1985**, 118, 1632

Biographical references:

Wer Ist Wer? Das Deutsche Who's Who 1999/2000, Schmidt-Römhild: Lübeck, 1999

Henry Edward Armstrong

6 May 1848 – 13 July 1937

British, b. Lewisham, England

Armstrong and Wynne's acids

see William Palmer Wynne

Biographical references:

Pötsch, W.R.; Fischer, A.; Müller, W., *Lexikon bedeutender Chemiker*, Verlag: Frankfurt, 1989

Gillispie, Charles Coulston (ed.), *Dictionary of Scientific Biography*, Charles Scribner & Sons: New York, 1980

Johann Friedrich Wilhelm Adolf von Baeyer



31 October 1835 - 20 August 1917
German, b. Berlin, Germany

Nobel Prize Chemistry 1905

Baeyer acids

Biographical References:

James, Laylin K. (ed.), *Nobel Laureates in Chemistry 1901 - 1992*, American Chemical Society: Washington, DC, 1993

Graebe, C., *Angew. Chem.* **1915**, 28, 433

Willstätter, R., *Angew. Chem.* **1917**, 30, 229

Huisgen, R., *Angew. Chem.* **1986**, 98, 297

Richter, F., Chem. Ber. **1935**, 68IA, 175

Sir Derek Harold Richard Barton



8 September 1918 – 16 March 1998
British, b. Gravesend, Kent, England

Nobel Prize Chemistry 1969

Barton esters

Barton, D.H.R.; Crich, D.; Motherwell, W.B., *Chem. Commun.* **1983**, 939

Biographical References:

Scott, A.I., *Tetrahedron* **1998**, 54, 8847

Chorghade, M.S., *Pure Appl. Chem.* **1999**, 71, 1075

Campbell, W.A.; Greenwood, N.N., *Contemporary British Chemists*,
Taylor & Francis Ltd.: London, 1971

McMurray, Emily J. (ed.), *Notable Twentieth-Century Scientists*,
Gale Research, Inc.: New York, 1995

Anon., *Chem. Eng. News*, **1998**, 76(2), 171

James, Laylin K. (ed.), *Nobel Laureates in Chemistry 1901 - 1992*,
American Chemical Society: Washington, DC, 1993

Abbott, David (ed.), *The Biographical Dictionary of Scientists: Chemists*,
Peter Bedrick Books: New York, 1983

Barton, D.H.R., Some Recollections of Gap Jumping, ACS: Washington, 1991

Arnold J. Bates

British, b. ?

Bates reagent (?-oxo-bis[tris(dimethylamino)phosphonium]bis(tetrafluoroborate))

Bates, A.J.; Galpin, I.J.; Hallett, A.; Hudson, D.; Kenner, G.W.; Ramage, R.; Sheppard, R.C., *Helv. Chim. Acta* **1975**, 58, 688

Biographical References:

Stanley Rossiter Benedict

17 March 1884 - 21 December 1936

American, b. Cincinnati, Ohio, USA

Benedict's solution (aqueous solution of potassium thiocyanate, potassium ferrocyanide, potassium or sodium citrate, copper sulfate, and sodium carbonate)

Benedict, S.R., *J. Biol. Chem.* **1909**, 5, 485

Biographical References:

Pollack, H., *Diabetes* **1953**, 2, 420

McCollum, E.V., *Biog. Memoirs Natl. Acad. Sci.* **1952**, 27, 155

R. Bindschedler

German, b. ?

Bindschedler's green (N-[4-[[4-(dimethylamino)phenyl]imino]-2,5-cyclohexadien-1-ylidene]-N-methylmethanaminium chloride)

Bindschedler, R. *Chem. Ber.* **1883**, 16, 864

Biographical references:

Hellmut Brederock

29 May 1904 -

German, b. Frankfurt im Main, Germany

Brederock's reagent (*t*-butoxy bis(dimethylamino)methane)

Brederock, H.; Simchen, G.; Rebsdatt, S.; Kantlehner, W.; Horn, P.; Wahl, R.; Hoffmann, H.; Grieshaber, P., *Chem. Ber.* **1968**, 101, 41

Biographical References:

Debus, Allen G. (ed.) *World Who's Who in Science* 1st ed., Marquis-Who's Who, Inc.: Hannibal: Missouri, 1968

Herbert Charles Brown

22 May 1912 –

British-American, b. London, England

Brown's reagent

Allyl bis-(2,6,6-trimethylbicyclo[3.1.1]hept-3-yl)borane

Brown, H.C.; Bhat, K.S.; Randad, R.S. *J. Org. Chem.* **1989**, 54, 1570

Biographical references:

James, Laylin K. (ed.), *Nobel Laureates in Chemistry 1901 - 1992*, American Chemical Society: Washington, DC, 1993

Edward M. Burgess

8 June 1934 –

American, b. Birmingham, Alabama, USA

Burgess reagent

Atkins, G.M.; Burgess, E.M., *J. Am. Chem. Soc.* **1968**, 90, 4744

Biographical references:

R.R. Bowker's *American Men & Women of Science 1998 - 99*, 20th ed., R.R. Bowker:
New Providence, New Jersey, 1998

Heinrich Caro



13 February 1834 - 11 September 1910
Polish-German, b. Posen, Germany, now Poznan, Poland

Caro's acid (persulfuric acid)

Caro, H., *Angew. Chem.* **1898**, 11, 845

Biographical References:

Bernthsen, A., *Angew. Chem.* **1911**, 24, 1059

Bernthsen, A., *Chem. Ber.* **1912**, 45, 1987

Partington, J.R., *A History of Chemistry*, Vol. IV, Macmillan and Co., Ltd.: London, 1964, p. 793

Rainer Ludwig Claisen

14 January 1851 - 5 January 1930

German, b. Cologne, Germany

Claisen's alkali (potassium hydroxide - water - methanol)

Claisen, L., *Ann. Chem.* **1919**, 418, 96

Biographical References:

Morris, Peter Biographies of Chemists, Royal Society of Chemistry,
<http://www.chem.qmw.ac.uk/rschg/biog.html>

Anschutz, R., *Chem. Ber.* **1936**, 69A, 97

Daintith, J.; Mitchell, S.; Tootill, E.; Gjersten, D., *Biographical Encyclopedia of Scientists*, Institute of Physics Publishing: Bristol, UK, 1994

Partington, J.R., *A History of Chemistry*, Vol. IV, Macmillan and Co., Ltd.: London, 1964, p. 813

Per Theodor Cleve

10 February 1840 – 18 June 1905

Swedish, b. Stockholm, Sweden

Cleve's acids

? ? acid (5-amino-naphthalene-1-sulfonic acid)

Cleve, P.T. *Öfversigt Kongl. Acad. Förhandlingar* (Stockholm) 1875, Heft 9, 24

? -acid (5-amino-naphthalene-2-sulfonic acid)

Cleve, P.T. *Öfversigt Kongl. Acad. Förhandlingar* (Stockholm) 1887, Heft 7, 54

? -acid (4-amino-naphthalene-2-sulfonic acid)

Cleve, P.T. *Öfversigt Kongl. Acad. Förhandlingar* (Stockholm) **1886**, Heft 7, 210

?-acid (8-amino-naphthalene-2-sulfonic acid)

Cleve, P.T. *Öfversigt Kongl. Acad. Förhandlingar (Stockholm)* **1878**, Heft 2, 31; **1888**, Heft 5, 274

Biographical references:

Pötsch, W.R.; Fischer, A.; Müller, W., *Lexikon bedeutender Chemiker*, Verlag: Frankfurt, 1989

Gillispie, Charles Coulston (ed.), *Dictionary of Scientific Biography*, Charles Scribner & Sons: New York, 1980

Joseph Charles Collins, Jr.

7 May 1931 -

American, b. Pontiac, Michigan, USA

Collin's reagent (chromium trioxide bispyridine complex)

Collins, J.C.; Hess, W.W.; Frank, F.J., *Tetrahedron Lett.* **1968**, 3363

Collins, J.C.; Hess, W.W., *Org. Synth. Coll. Vol. VI* **1988**, 6, 644

Biographical References:

R.R. Bowker's *American Men & Women of Science 1998 - 99*, 20th ed., R.R. Bowker: New Providence, New Jersey, 1998

James Paddock Collman

31 October 1932 -

American, b. Beatrice, Nebraska, USA

Collman's reagent (disodium tetracarbonylferrate)

Siegl, W.O.; Collman, J.P., *J. Am. Chem. Soc.* **1972**, 94, 2516

Collman, J.P.; Finke, R.G.; Cawse, J.N.; Brauman, J.I., *J. Am. Chem. Soc.* **1977**, 99, 2515

Collman, J.P.; Finke, R.G.; Cawse, J.N.; Brauman, J.I., *J. Am. Chem. Soc.* **1978**, 100, 4766

Collman, J.P.; Winter, S.R.; Clark, D.R., *J. Am. Chem. Soc.* **1972**, 94, 1788

Collman, J.P.; Hoffman, N.W., *J. Am. Chem. Soc.* **1973**, 95, 2689

Collman, J.P., *Acc. Chem. Res.* **1975**, 8, 342

Biographical references:

Collman, J.P., *Acc. Chem. Res.* **1975**, 8, 342

R.R. Bowker's *American Men & Women of Science 1998 - 99*, 20th ed., R.R. Bowker:
New Providence, New Jersey, 1998

Elias James Corey



12 July 1928 -

American, b. Methuen, Massachusetts, USA

Nobel Prize Chemistry 1990

Corey-Kim reagent (N-chlorosuccinamide - dimethyl sulfide)

Corey, E.J.; Kim, C.U., *J. Am. Chem. Soc.* **1972**, 94, 7586

Corey's reagent (pyridinium chlorochromate)

Corey's reagent (dimethylsulfoxonium methylide)

Corey lactone (hexahydro-4-hydroxymethyl-5-(4-phenylbenzoyloxy)
cyclopenta[b]furan-2-one)

Corey aldehyde (hexahydro-4-carboxaldehyde-5-(4-triethylsiloxy)
cyclopenta[b]furan-2-one)

Biographical References:

McMurray, Emily J. (ed.), *Notable Twentieth-Century Scientists*, Gale Research, Inc.: New York, 1995

James, Laylin K. (ed.), *Nobel Laureates in Chemistry 1901 - 1992*, American Chemical Society: Washington, DC, 1993

Sir John Warcup Cornforth



7 September 1917 -
Australian, b. Sydney, Australia

Nobel Prize Chemistry 1975

Cornforth reagent (chromium trioxide - pyridine - water)

Cornforth, R.H.; Cornforth, J.W.; Popjak, G., *Tetrahedron* **1962**, 18, 135

Biographical References:

Campbell, W.A.; Greenwood, N.N., *Contemporary British Chemists*, Taylor & Francis Ltd.: London, 1971

McMurray, Emily J. (ed.), *Notable Twentieth-Century Scientists*, Gale Research, Inc.: New York, 1995

James, Laylin K. (ed.), *Nobel Laureates in Chemistry 1901 - 1992*, American Chemical Society: Washington, DC, 1993

Abbott, David (ed.), *The Biographical Dictionary of Scientists: Chemists*, Peter Bedrick Books: New York, 1983

Robert H. Crabtree

17 April 1948 –
British, b. London, England

Crabtree's catalyst

(1,5-cyclooctadiene)bis(methyldiphenylphosphine)iridium(I)
hexafluorophosphate

(1,5-cyclooctadiene)tricyclohexylphosphinepyridinioiridium(I)
hexafluorophosphate

Crabtree, R.H.; Morris, G.E. *J. Organomet. Chem.* **1977**, 135, 395

Crabtree, R.H.; Felkin, H.; Morris, G.E. *J. Organomet. Chem.* **1977**, 141, 205

Crabtree, R.H. *Acc. Chem. Res.* **1979**, 12, 331

Biographical references:

R.R. Bowker's *American Men & Women of Science 1998 - 99*, 20th ed.,
R.R. Bowker: New Providence, New Jersey, 1998

Carol Creutz

20 October 1944 –
American, b. Washington, D.C., USA

Creutz-Taube complex, ion

Decaamine- π -(pyrazine- $N^1:N^4$)diruthenium(5+) or

π -pyrazine-bis[pentaammineruthenium(III,II)]

Creutz, C.; Taube, H. *J. Am. Chem. Soc.* **1969**, 91, 3988

Creutz, C.; Taube, H. *J. Am. Chem. Soc.* **1973**, 95, 1086

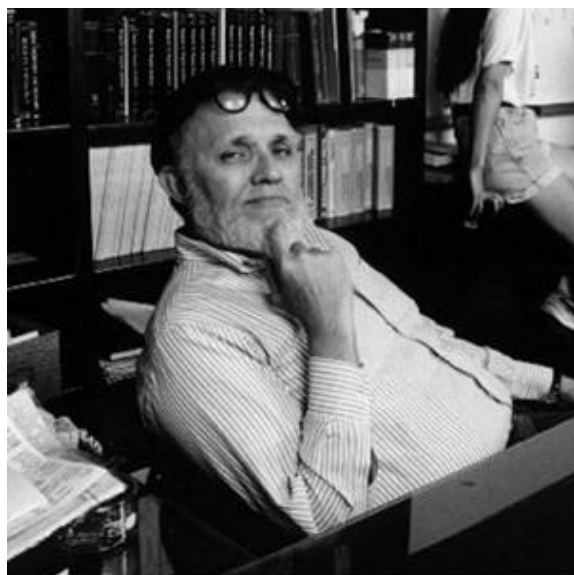
Creutz, C. *Prog. Inorg. Chem.* **1983**, 30, 1

Biographical references:

R.R. Bowker's *American Men & Women of Science 1998 - 99*, 20th ed.,

R.R. Bowker: New Providence, New Jersey, 1998

Samuel J. Danishefsky



10 March 1936 -

American, b. Bayonne, New Jersey, USA

Danishefsky reagent (dicarboxyethylacetylene)

Danishefsky's diene (*trans*-1-methoxy-3-trimethylsilyloxy-1,3-butadiene)

Danishefsky, S.; Kitahara, T., *J. Am. Chem. Soc.* **1974**, 96, 7807

Biographical References:

Danishefsky, S., *Acc. Chem. Res.* **1981**, 14, 400

R.R. Bowker's *American Men & Women of Science 1998 - 99*, 20th ed.,
R.R. Bowker: New Providence, New Jersey, 1998

Sir James Dewar

20 September 1842 - 27 March 1923
Scottish, b. Kincardine-on-Forth, Scotland

Dewar benzene (bicyclo[2.2.0]hexa-2,5-diene)

Dewar, J., *Proc. Roy. Soc. Edinburgh* **1867**, 6, 82

Biographical References:

Armstrong, H.E., *J. Chem. Soc.* **1928**, 1066

Partington, J.R., *A History of Chemistry*, Vol. IV, Macmillan and Co., Ltd.: London, 1964,
p. 904

William von Eggers Doering

22 June 1917 –
American, b. Fort Worth, Texas, USA

Doering-Zeiss intermediate

Doering, W. von E.; Zeiss, H.H., *J. Am. Chem. Soc.* **1953**, 75, 4733

Biographical references:

R.R. Bowker's *American Men & Women of Science 1998 - 99*, 20th ed., R.R. Bowker:
New Providence, New Jersey, 1998

R.Ebert

Ebert and Merz acids
2,7-naphthalenedisulfonic acid, 2,6-naphthalenedisulfonic acid

Ebert, R.; Merz, V. *Chem. Ber.* **1876**, 9, 592

Biographical references:

Pehr Victor Edman

14 April 1916 - 19 March 1977

Swedish, b. Stockholm, Sweden

Edman's reagent

Edman, P., *Acta Chem. Scand.* **1950**, 4, 283

Biographical references:

Partridge, S.M.; Blomback, B., *Biog. Memoirs Fellows Roy. Soc.* **1979**, 25, 241

Paul Ehrlich

14 March 1854 – 20 August 1915

German, b. Strehlen, Germany (now Strzelin, Poland)

Nobel Prize Physiology and Medicine 1908

Ehrlich's reagent (1,4-aminobenzaldehyde)

Adams, R.; Coleman, G.H. *Org. Synth. Coll. Vol. I* **1932**, 214

Campaigne, E.; Archer, W.L. *Org. Synth. Coll. Vol. IV* **1963**, 331

Biographical references:

Pötsch, W.R.; Fischer, A.; Müller, W., *Lexikon bedeutender Chemiker*, Verlag: Frankfurt, 1989

Gillispie, Charles Coulston (ed.), *Dictionary of Scientific Biography*, Charles Scribner & Sons: New York, 1980

George Leon Ellman

27 December 1923 -

American, b. Chicago, Illinois, USA

Ellman's reagent (bis(4-nitro-5-carboxylphenyl)disulfide)

Ellman, G.L. *Arch. Biochem. Biophys.* **1959**, 82, 70

Biographical references:

R.R. Bowker's *American Men & Women of Science 1998 - 99*, 20th ed., R.R. Bowker: New Providence, New Jersey, 1998

Hugo Erdmann

8 May 1862 – 25 June 1910

German, b. Pr. Holland, East Prussia

Erdmann's ? acid (Cleve's ?-acid, 5-amino-naphthalene-2-sulfonic acid)

Erdmann, H. *Ann.* **1893**, 275, 262

Erdmann, H. *Ann.* **1893**, 275, 192

Biographical references:

Wichelhaus, H. *Chem. Ber.* **1910**, 43, 2073

Pogg. 4, 390; 5, 343

Albert Eschenmoser

5 August 1925 -

Swiss, b. Erstfeld, Switzerland

Eschenmoser's salt (dimethyl(methylene)ammonium iodide)

Schreiber, J.; Maag, H.; Hashimoto, N.; Eschenmoser, A., *Angew. Chem. Int. Engl. Ed.* **1971**, 10, 330

Biographical References:

Daintith, J.; Mitchell, S.; Tootill, E.; Gjersten, D., *Biographical Encyclopedia of Scientists*, Institute of Physics Publishing: Bristol, UK, 1994

Sorensen, E.J., *Helv. Chim. Acta* **2000**, 83, 1673

Hermann Christian von Fehling

9 June 1812 - 1 July 1885

German, b. Lübeck, Germany

Fehling solution (aqueous solution of copper sulfate, sodium tartrate, and sodium hydroxide)

Fehling, H., *Ann. Chem.* **1849**, 72, 106

Biographical References:

Anon., *J. Chem. Soc.* **1886**, 49, 346

Daintith, J.; Mitchell, S.; Tootill, E.; Gjersten, D., *Biographical Encyclopedia of Scientists*, Institute of Physics Publishing: Bristol, UK, 1994

Henry John Horstman Fenton

18 February 1854 - 13 January 1929

British, b. Ealing, England

Fenton reagent (hydrogen peroxide - iron salts)

References:

Fenton, H.J.H., *J. Chem. Soc.* **1894**, 65, 899

Fenton, H.J.H., *Proc. Chem. Soc.* **1893**, 9, 113

Biographical References:

W.H.M., *J. Chem. Soc.* **1930**, 889

Debus, Allen G. (ed.) *World Who's Who in Science*, 1st ed., Marquis-Who's Who, Inc.: Hannibal: Missouri, 1968

Pogg. **1937**, 6(2), 723

Marcel Ernest Paul Fétizon

14 December 1926 -

French, b. Verzenay, Marne, France

Fétizon's reagent (silver carbonate - celite)

Fétizon, M.; Golfier, M., *Compt. Rend.* **1968**, 267, 900

Biographical References:

Who's Who in France 1996 - 1997, 28th ed., Éditions Jacques Lafitte S.A.: Levallois-Perret, France, 1996

Louis Frederick Fieser

7 April 1899 - 25 July 1977

American, b. Columbus, Ohio, USA

Fieser's reagent (chromium trioxide - acetic acid)

Fieser's solution (aqueous solution of potassium hydroxide, sodium hydrosulfite, and sodium anthraquinone b-sulfonate)

Fieser, F., *J. Am. Chem. Soc.* **1924**, 46, 2639

Biographical References:

Gates, M., *Biog. Memoirs Natl. Acad. Sci.* **1994**, 65, 161

Ernst Otto Fischer



10 November 1918 –
German, b. Munich, Germany

Nobel Prize Chemistry 1973

Fischer carbene

Fischer, E.O.; Maasbol, A., *Angew. Chem. Int. Engl. Ed.* **1964**, 3, 580

Fischer, E.O., *Adv. Organomet. Chem.* **1976**, 14, 1

Biographical references:

R.R. Bowker's American Men & Women of Science 1998 - 99, 20th ed., R.R. Bowker:
New Providence, New Jersey, 1998

James, Laylin K. (ed.), *Nobel Laureates in Chemistry 1901 - 1992*, American Chemical Society: Washington, DC, 1993

Joseph Karl Anton Fischer

24 March 1901 – 16 April 1958

German, b. Pasing near Munich, Germany

Karl Fischer reagent (iodine - sulfur dioxide - water)

Fischer, K., *Angew. Chem.* **1935**, 48, 394

Biographical References:

Morris, Peter Biographies of Chemists, Royal Society of Chemistry,
<http://www.chem.qmw.ac.uk/rschg/biog.html>

Pogg. **1968**, 7A(2), 56

Schöffski, K. *Chem. Unserer Zeit* **2000**, 34, 170

S. Forsling

Forsling's acid (2-amino-1,6-naphthalenedisulfonic acid)

Forsling, S. *Chem. Ber.* **1888**, 21, 3495

Biographical references:

Edmond Frémy

28 February 1814 - 2 February 1894

French, b. Versailles, France

Frémy's salt (potassium nitrosodisulfonate)

Frémy, E., *Ann. Chim. Phys.* **1845**, 15, 408

Biographical References:

Gillispie, Charles Coulston (ed.), *Dictionary of Scientific Biography*, Charles Scribner & Sons: New York, 1980

Debus, Allen G. (ed.) *World Who's Who in Science*, 1st ed., Marquis-Who's Who, Inc.: Hannibal: Missouri, 1968

Martin Freund

18 March 1863 – 13 March 1920

German, b. Neisse, Schlesien, Germany (now Nysa, Poland)

Freund's acid (4-amino-2,7-naphthalenedisulfonic acid)

Armstrong, H.E.; Wynne, W.P. *Proc. Chem. Soc.* **1895**, 11, 82

Biographical references:

Speyer, E. *Angew. Chem.* **1920**, 33, 121

Spiegel, L. *Chem. Ber.* **1921**, 54A, 53

Pogg. 4, 456; 5, 394; 6, 811

Richard Buckminster Fuller

12 July 1895 - 1983

American, b. Milton, Massachusetts, USA

buckminsterfullerene

Kroto, H.W.; Heath, J.R.; O'Brien, S.C.; Curl, R.F.; Smalley, R.E., *Nature* **1985**, 318, 162

Biographical References:

Curr. Biog. **1976**, 147

Saari, Peggy; Allison, Stephen, *Scientists: The Lives and Works of 150 Scientists*, U.X.L. (Gale): USA, 1996