

Table 1

## RECOMMENDED PRIMERS FOR GENERAL SERVICE

| 1                    | 2                                                       | 3                                              | 4                | 5                                                    | 6                                                                                                               | 7                                                                                                               | 8                                                                                                               | 9                                      | 10                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------|---------------------------------------------------------|------------------------------------------------|------------------|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ASPO<br>Paint<br>No. | Other<br>Designation                                    | Pigment                                        | Wt. %<br>Pigment | Vehicle<br>Solids                                    | 10<br>15<br>20<br>25<br>30<br>35<br>40<br>45<br>50<br>55<br>60<br>65<br>70<br>75<br>80<br>85<br>90<br>95<br>100 | 10<br>15<br>20<br>25<br>30<br>35<br>40<br>45<br>50<br>55<br>60<br>65<br>70<br>75<br>80<br>85<br>90<br>95<br>100 | 10<br>15<br>20<br>25<br>30<br>35<br>40<br>45<br>50<br>55<br>60<br>65<br>70<br>75<br>80<br>85<br>90<br>95<br>100 | Minimum<br>Acceptable<br>Surface Prep. | Remarks                                                                                                                                                                                                                                                                                                                                                                    |
| 1                    | TT-3-66 (old)<br>Sept. 1959 or<br>ASPO NT2-49<br>Type I | Red Lead 100%                                  | 78.5             | New Linseed<br>oil                                   | 25                                                                                                              | 6                                                                                                               | 72                                                                                                              | Superficial<br>manual cleaning         | A high quality heavy duty structural primer<br>with very good wetting ability) can be used<br>over poorly prepared surfaces, or where the<br>long time required for drying is not a<br>handicap. Good for maintenance work;<br>thorough hand cleaning or better surface<br>preparation is preferred. Excellent for<br>atmospheric exposure.                                |
| 2                    | TT-3-66a<br>Type I or<br>ASPO NT2-49<br>Type II         | Red Lead 100%                                  | 78.5             | New Linseed<br>oil<br>Bottled Lin-<br>seed oil       | 25.3                                                                                                            | 6                                                                                                               | 36                                                                                                              | Superficial<br>manual cleaning         | A high quality heavy duty structural primer<br>with good wetting ability and faster drying<br>than straight new linseed oil; however, drying<br>time is still long. Used on structural steel<br>even though rusted and millscaled; however,<br>hand cleaning is advisable. Excellent for<br>atmospheric exposure, bridges, etc.                                            |
| 3                    | TT-3-66a<br>Type II or<br>ASPO NT2-49<br>Type III       | Red Lead 65%<br>Iron oxide 15%<br>Extender 20% | 67.5             | New Linseed<br>oil<br>Alkyd varnish<br>(equal parts) | 16.7                                                                                                            | 6                                                                                                               | 26                                                                                                              | Hand cleaning                          | A semi-quick drying primer for structural<br>steel, with fair wetting ability. As steel<br>must be degreased and very carefully cleaned,<br>even though by hand. Its iron oxide and<br>alka content gives it good weathering<br>resistance. This paint makes an excellent<br>intermediate coat as well as a good structural<br>primer. Power tool cleaning is recommended. |
| 4                    | TT-3-66a<br>Type III                                    | Red Lead 100%                                  | 67               | Alkyd<br>varnish                                     | 18.4                                                                                                            | 1                                                                                                               | 6                                                                                                               | Blust cleaning<br>or blasting          | This primer is quick drying with poor wetting<br>ability; it is of high quality and is excel-<br>lent for bare steel, structural or sheet. It<br>is used where the steel is rust and scale<br>free, is contaminated or severe atmospheric,<br>high humidity, or where quick recoating is<br>essential.                                                                     |

| 1    | 2                                         | 3                                                              | 4    | 5                                                        | 6    | 7  | 8  | 9                             | 10                                                                                                                                                                                                                                                                      |
|------|-------------------------------------------|----------------------------------------------------------------|------|----------------------------------------------------------|------|----|----|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P 5  | 72-2-06a<br>Type IV                       | Red Lead 85%<br>Extender 15%                                   | 65   | Praxiclor<br>Verdian                                     | 27   | 2  | 6  | Black Cleaning<br>or Pickling | A quick drying structural steel primer of high quality but poor wetting ability. Must be used over bare metal. Highly recommended for wet immersion, high humidity, chemical environments, below and marine exposures; recommended for potable water tanks.             |
| P 6  | ALGHO 712-49<br>Type IV                   | Red Lead 100%                                                  | 74.5 | New Linseed oil<br>Allyd varnish<br>(equal parts)        | 21.4 | 4  | 16 | Hand cleaning                 | This paint is similar to P3 except that the pigment is all red lead; it is used as a semi-quick drying structural primer over carefully cleaned steel. Power cleaning advised.                                                                                          |
| P 7  | betulohem<br>Steel 7525-<br>PSC-21        | Red Lead 75%<br>Iron oxide 25%                                 | 75   | New Linseed oil (two parts)<br>Allyd varnish<br>(1 part) | 22   | 26 | 26 | Hand cleaning                 | An excellent general purpose heavy duty primer for structural steel; allow drying with good wetting ability, but not equal to 100% red linseed oil in wetting; therefore, the steel must be cleaned carefully. The iron oxide content gives it good weathering ability. |
| P 8  | American<br>Bridge Structural Primer      | Red Lead 75%<br>Iron oxide 25%                                 | 75   | Praxiclor and<br>linseed oil                             | 22   | 26 | 26 | Hand cleaning                 | An excellent general purpose heavy duty primer for structural steel, particularly bridges and atmospheric exposure. The linseed oil is especially fractionated to obtain quicker drying. Good wetting ability and slow drying; good weathering resistance.              |
| P 9  | Red Lead<br>and Linseed<br>Litharge 20/80 | Red Lead<br>Litharge 20/80                                     |      | New Linseed oil<br>Bottled<br>linseed oil                |      | 6  | 24 | Hand cleaning                 | This red lead paint is made by adding 29 of dry litharge to 1 gallon of P2 (72-2-06a, Type I) just prior to use. The paint dries faster and harder and is used for the interior of water tanks, including potable.                                                      |
| P 10 | Boulbert<br>Railway 712-2                 | Red Lead 75%<br>Extender 25%                                   | 63   | New Linseed oil<br>Bottled<br>linseed oil                | 15.5 |    | 18 | Hand cleaning                 | An excellent paint for structural steel in atmospheric exposure, such as bridges. Good wetting ability with slow to semi-quick drying time; medium cost.                                                                                                                |
| P 11 | 71-2-57<br>Type I                         | Yellow 50%<br>Iron Oxide 15%<br>Blue Oxide 15%<br>Extender 20% | 59   | New Linseed oil<br>Allyd varnish<br>(equal parts)        | 13   | 4  | 24 | Hand cleaning                 | High quality zinc chromate primer available for structural steel. Fairly slow drying with good wetting ability; yellow color; intended for atmospheric exposure; steel must be well cleaned; Power wire brushed or better, if feasible.                                 |

| 1    | 2                        | 3                                                                         | 4    | 5                   | 6    | 7 | 8  | 9                                                                   | 10                                                                                                                                                                                                                                                                                                  |
|------|--------------------------|---------------------------------------------------------------------------|------|---------------------|------|---|----|---------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P 12 | TT-P-57<br>Type II       | Zinc yellow 245<br>Iron oxide 375<br>Zinc oxide 145<br>Extender 254       | 44.5 | Alkyd<br>varnish    | 10.5 | 2 | 16 | Blaze cleaning<br>or Pickling                                       | A high quality chromate primer that may be used over bare metal because of its poor wetting ability. Quick drying; yellow color may be used in wet environments, but not for potable water tanks.                                                                                                   |
| P 13 | TT-P-57<br>Type III      | Zinc yellow 245<br>Iron oxide 315<br>Zinc oxide 145<br>Extender 315       | 48   | Phenolic<br>varnish | 11   | 2 | 16 | Blaze cleaning<br>or Pickling                                       | This primer is intended for use over bare metal because of its quick drying and poor wetting characteristics. It is excellent on steel which will be exposed to severe humidity conditions or fresh water immersion (not potable).                                                                  |
| P 14 | JAN-P-735                | Zinc yellow 505<br>Titanium dioxide 175<br>Zinc oxide 194<br>Extender     | 47   | Alkyd<br>varnish    | 11.3 | 2 | 6  | Hand cleaning                                                       | A general purpose zinc chromate primer, should be used over bare metal for best results. If used over hand cleaned steel, the steel must be well cleaned with no oil or grease. Used over welds to reduce corrosion.                                                                                |
| P 15 | USNA S2M-202             | Zinc yellow 475<br>Zinc oxide 145<br>Titanium dioxide 115<br>Extender 274 | 47   | Alkyd<br>varnish    | 11.1 | 3 | 6  | Blaze cleaning<br>or Pickling                                       | Intended as a chromate primer for stripes to be used on clean metal; quick drying, poor wetting ability. Good for general condition of immersion in salt or fresh water.                                                                                                                            |
| P 16 | U.S. Navy<br>Formula 116 | Red lead 555<br>Zinc yellow 105<br>Extender 354                           | 50   | Alkyd<br>varnish    | 12.6 | 2 | 6  | Hand cleaning                                                       | An excellent mixed pigment primer for structural steel that is exposed to salt water, docks, diving brine, topcoats of ships, etc. Quick drying and poor wetting ability, but may be used with great care over thoroughly cleaned steel. Similar to U.S.N.A. S2M-201a.                              |
| P 17 | TT-P-611<br>Type I       | Zinc dust 805<br>Zinc oxide 205                                           | 80   | Bar linseed<br>oil  | 23   |   | 36 | Superficial<br>manual cleaning                                      | An excellent zinc dust primer for rusty or poorly cleaned steel; excellent for painting new or old galvanized iron. Very slow drying and very good wetting ability. Excellent for structural steel priming. May be used for finish coats. Excellent for fresh water wood allowed to dry thoroughly. |
| P 18 | TT-P-611<br>Type II      | Zinc dust 805<br>Zinc oxide 205                                           | 65   | Alkyd<br>varnish    | 16   | 1 | 18 | Blaze cleaning<br>or Pickling<br>or Unwashed<br>galvanized<br>steel | An excellent zinc dust primer for clean structural steel or for unwashed galvanized iron. Good resistance to contamination or industrial atmospheres when suitably topcoated. Quick drying; poor wetting ability.                                                                                   |

| 1    | 2                                                      | 3                                                                 | 4    | 5                                                    | 6   | 7   | 8   | 9                                                     | 10                                                                                                                                                                                                                                                                                 | 11 |
|------|--------------------------------------------------------|-------------------------------------------------------------------|------|------------------------------------------------------|-----|-----|-----|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| P 19 | Corps of Engineers CE-1109-75 modified                 | Zinc dust 80%<br>Zinc oxide 20%                                   | 75   | Praxair<br>various                                   | 2.5 | 2   | 6   | Blast cleaning<br>or Pickling                         | Outstanding zinc dust primer for fresh water immersion when steel is cleaned to bare metal. Excellent for high humidity or contaminated atmospheres may be used over P 17, quick drying, recommended for potable water tanks                                                       |    |
| P 20 | Bentley Dist. of Chicago Zinc dust Bottled linseed oil | Zinc dust 70%<br>Zinc oxide 10%<br>Aluminum 2%<br>Krytox 12%      |      | Bottled<br>linseed oil<br>(B Body)                   |     |     |     | Good cleaning                                         | An excellent zinc dust primer, for atmospheres exposed on galvanized iron or structural steel. Faster drying and more resistant than P 17.                                                                                                                                         |    |
| P 21 | Bentley Maintenance Primer M-1-527 Amd. #1 Type III    | Iron oxide 10%<br>Zinc yellow 10%<br>Krytox 20%                   |      | Shur Linseed oil<br>Alkyd<br>various<br>(equal part) | 11  |     | 24  | Hand cleaning                                         | A general purpose red oxide-carbonate primer for structural steel exposed in the atmosphere; good quality. Not recommended for long exposure in severe conditions without topcoat. Slow drying and fairly good wetting ability. Excellent for maintenance work.                    |    |
| P 22 | Sanitary Dist. of Chicago #29                          | Zinc yellow 5%<br>Ead lead 2.5%<br>Iron oxide 30%<br>Krytox 32.5% | 43   | Praxair<br>various                                   |     | 4   | 20  | Hand cleaning                                         | An all purpose structural steel primer of high quality. Fair wetting power and semi-quick drying. May be used on hand cleaned steel if the steel is cleaned thoroughly. Excellent for water and sewage plants, immersion, atmospheric, or high humidity. Good chemical resistance. |    |
| P 24 | Corps of Engineers CE-1108-71 modified                 | Zinc dust 50%<br>Zinc oxide 20%<br>Iron oxide 30%                 | 63   | Praxair<br>various                                   | 16  | 2   | 6   | Blast cleaning<br>or Pickling                         | Excellence, quick drying zinc dust primer for structural steel immersed in fresh water, in high humidity, or contaminated atmosphere. Recommended for topcoat also. Poor wetting ability necessitates bare metal surface for good results when used as primer.                     |    |
| P 27 | MIL-P-15929 (Bureau of Salpe 119)                      | Red lead 100%                                                     | 22.5 | Vinyl                                                | 9.5 | 1/8 | 1/2 | Blast cleaning<br>or Pickling<br>and<br>Warm pickling | This red lead vinyl primer must be used over Pretreatment #3--base Primer, never over bare steel. Outstanding in its resistance to form or salt water immersion, chemical exposures, and other severe exposures. Extremely fast drying, but low build per coat.                    |    |

