2011.03.25

Comments on ENERGY STAR Imaging Equipment Version 2.0 Specification Revision Issues for Discussion

Japan Business Machines and Information System Industries Association (JBMIA)

Issue1;

We agree to revise the specification, taking unqualified products into consideration and asked our member companies to forward corresponding data to EPA. However, we suppose the number of unqualified products is not so great as expected, which was the case in the previous survey done at the last revision. Since the ENERGY STAR label is required for candidate products for the US government procurement, it is not allowed for manufacturers to continue producing unqualified products, once they have developed a qualified one, thus terminating the production of unqualified products.

In recent years the improved fuser technology accompanied by new toner, which melts at significantly lower temperature, realized much shorter warm-up time than before and the energy consumption in ready mode has been greatly reduced (as shown in the attached Fig.1 ~ Fig.3).

In other words, as shown in the attached Fig.4 (TEC power profile), there remains a very small area for further energy reduction: Sleep is now as small as a few watts, Ready is reduced to minimal duration and the rest is pure Printing energy. To further reduce Printing energy is almost impossible, since the fusing temperature has been already greatly reduced.

We think the application of 25% criteria is not always appropriate in the current situation, where partially the horizontal line --- no tilt, implying the limit --- is adopted as the specification. To mechanically continue application of 25% every two years may jeopardize manufacturers' efforts of energy saving. We would like EPA to consider such a specification, qualifying more than 50%, taking the already reduced energy level into consideration.

Issue2;

Issue3;

No comment, since the product in question is not made or handled by our member companies.

Issue4;

We propose to remove Copier from the specification with the following reason:

1. The energy reduction of Copier has been already achieved to its limit level, with no area for further reduction.
2. The market share of Copier is fairly small, making the impact of Copier energy reduction minimal.
3. As it is, Copier is now one variation of MFD. The energy reduction of MFD will automatically lead to Copier energy reduction.

Issue5;

Issue6;

Issue7;

No comment, since the product in question is not made or handled by our member companies.

Issue8;

Since the scope of IEC62301 is limited to "household appliances", the application of this standard for "business machines" is not appropriate, particularly concerning the definition of "Standby". We would like to have its definition altered, as we have proposed in the previous revision.
Having said above, it is still unclear for us, what happens, when IEC62301 Ed2.0 is referenced in ENERGY STAR IE Ver.2.0. Please clarify the change, which EPA intends, item by item in detail.

Issue9;

In Japan the shipment of color MFD surpassed that of monochrome MFD. We think color printing is now growing. As to the energy consumption between full-color image and text with color image, there is no considerable difference, since it is printed both in color mode with the same fusing temperature.

Issue10;

The percentage of color printing depends on users and it is hard to tell the average percentage, since the usage of the color device has a very wide spectrum.

Serial type color devices did exist in the early stage of color penetration into the market. However, parallel type color device is now the dominant one. We don't think any change of TEC test method is necessary.

Issue11;

As pointed out, there are devices with capacitor. If this kind of devices increases its share in the future, some improvement of TEC test method may be necessary. However, the adoption of capacitor doesn't seem to increase, rather limited or diminishing. Therefore, no change would be necessary.

Issue12;

As to EP devices, there is no significant influence of print driver setting over the energy consumption.

Issue13;

We agree to the two EPA's proposal, namely specifying the power level of the final sleep mode and measuring sleep power consumption directly. We have no additional proposal to change TEC test method. We do not welcome any change, since TEC measurement is reaching maturity.

Issue14;

The usage of devices, such as print volume, is dependent on the country/area, being too divergent to be represented with one average value. We should take the relative comparison of energy consumption rather than the absolute one. Therefore, no change of testing method would be necessary.

Issue15;

Active1 is normally equal or greater than Active0. The other case, namely Active1<Active0, is deemed a special one. For example, at the first print after switch-on (Active0) some irregular state might occur, say, due to

diagnostics or conditioning of the device. Anyway, retesting is absolutely necessary, when you should have Active1<Active0.

Issue16;
No comment, since not all the member companies produce or handle the device in question.

Issue17;
We cannot believe that Fig.4 represents the actual situation.
Recently Warm-up Time as well as Recovery Time has been so much improved, i.e. reduced, that it would be unrealistic, so we presume, for users to disable energy-saving mode of such devices. A new survey seems necessary as to disabling energy-saving mode of the recent new devices with reduced Recovery Time. (The EuP survey, which was done before 2007, seems to be based on the old devices with longer Recovery Time.)

Issue18;
No comment, since not all the member companies produce or handle the device in question.

Issue19;
We agree to EPA's proposal.

Issue20;
Judging from the prevalence, Ethernet would be the primary network connection. If the product has no Ethernet connectivity, the connection type should be at the discretion of the manufacturer.

Issue21;
"The connected PC on Ethernet (or WiFi) send an SNMP packet at least once every 10 minutes" may be a good specification.

Issue22;
The connection to telephone line does increase energy consumption of the device. However, its influence is not so much as to change the relative order of energy consumption between MFD's with and without

fax function. Therefore, the connection to telephone line during TEC measurement would be unnecessary.

Issue23;

The measurement of default delay time to Sleep mode would be burdensome; testers must keep looking at both wattage meter and watch when the device falls to Sleep Mode. It would be enough that the manufacturer reports the default delay time. As TEC specifies overall consumption energy (kWh/week), the default delay time may be at the discretion of manufacturers rather than being specified.

Issue24;

We agree to EPA's proposal.

Issue25;

No comment, since the product in question is not made or handled by our member companies.

Issue26;

Since no reliable international standard concerning life cycle assessment has been established yet, it would be too early to start discussion on LCA.

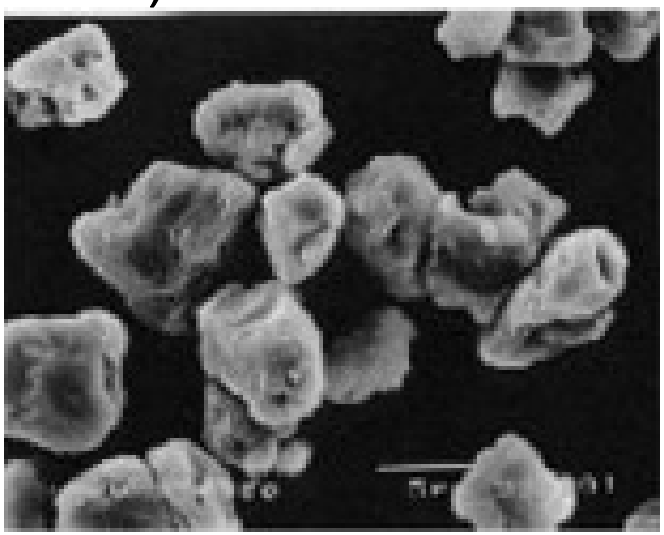
Miscellaneous;

In the current IE Ver.1.2 Copier and Printer belong to the same TEC Table1. Taking the difference of reduced power level of each product category (off vs. sleep) into consideration, Copier and Printer should be categorized in different groups.

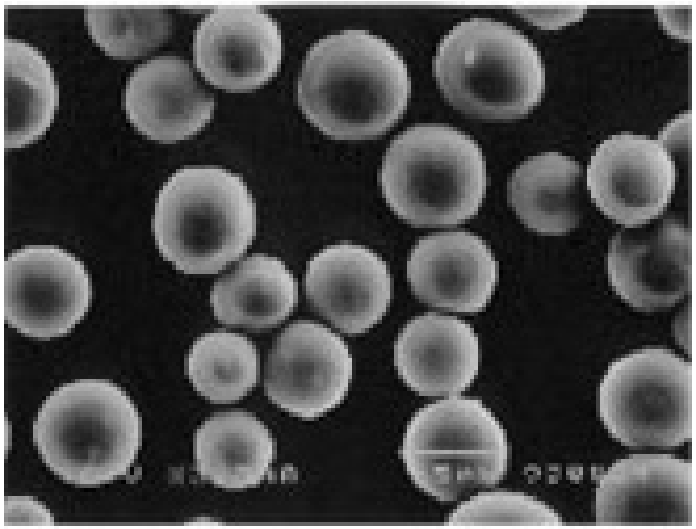
Lowering toner melting temperature
(example)

→ **Big improvement of manufacturing method**
(breakthrough)

Crash toner (conventional toner)



Chemical toner (capsul toner)



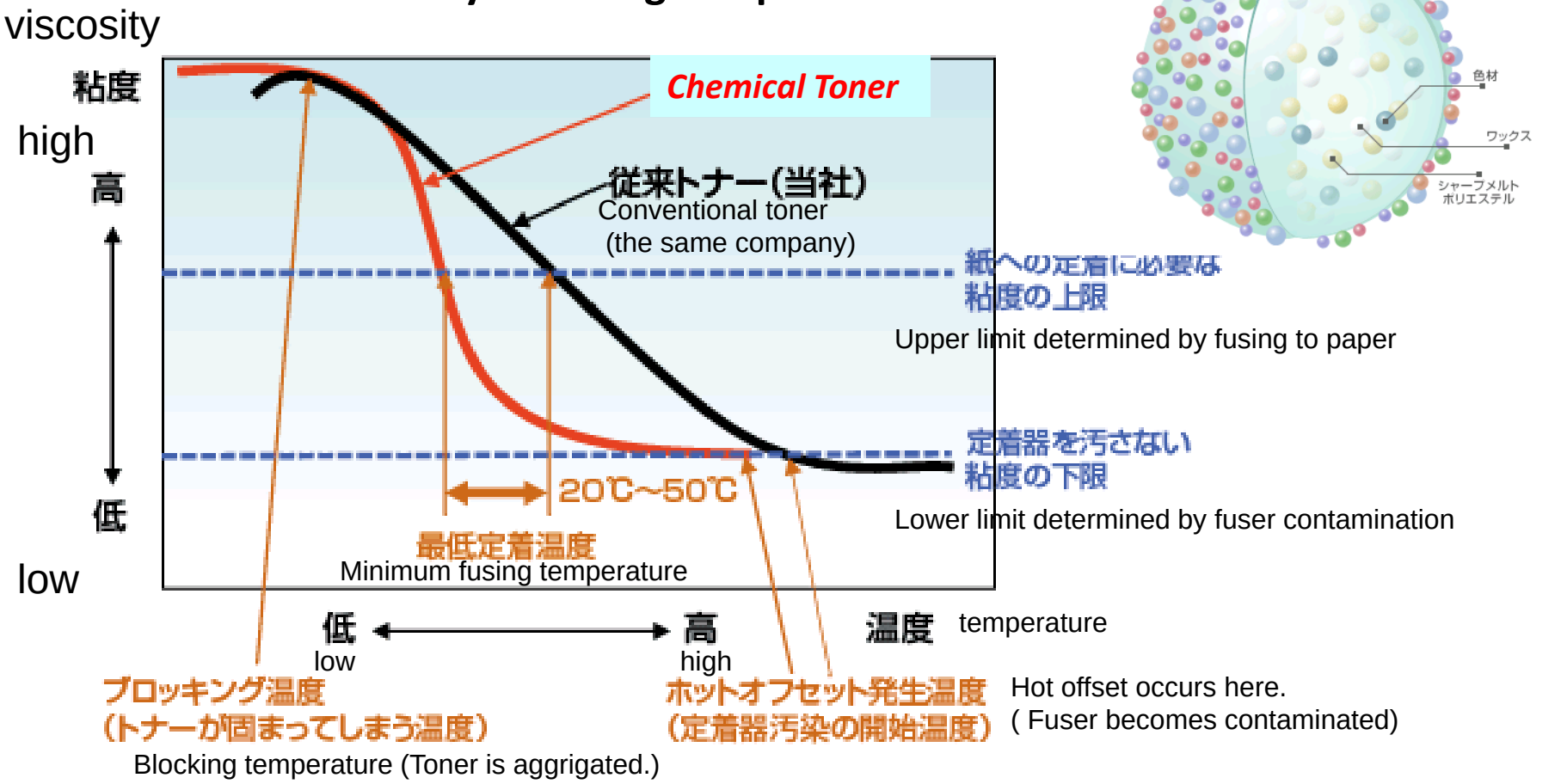
Reduced toner diameter

Improvement of diameter distribution

(Removing too small/ too big toner)

Fig.1 New Toner

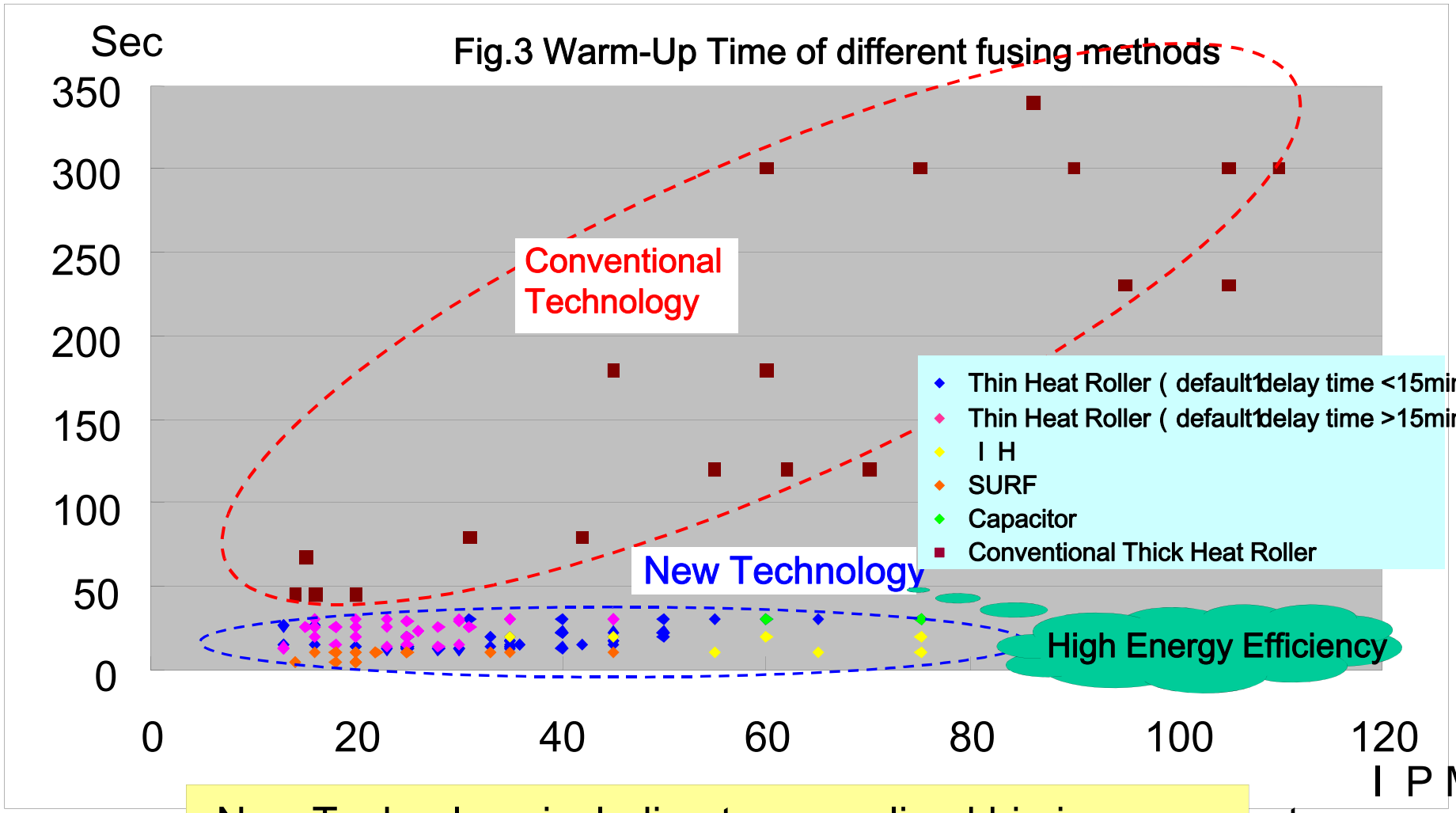
Toner Viscosity vs Fusing Temperature



Steep fall of viscosity against temperature realizes minimum fusing temperature lowered by 20 to 50 degrees centigrade. (tremendous improvement!)

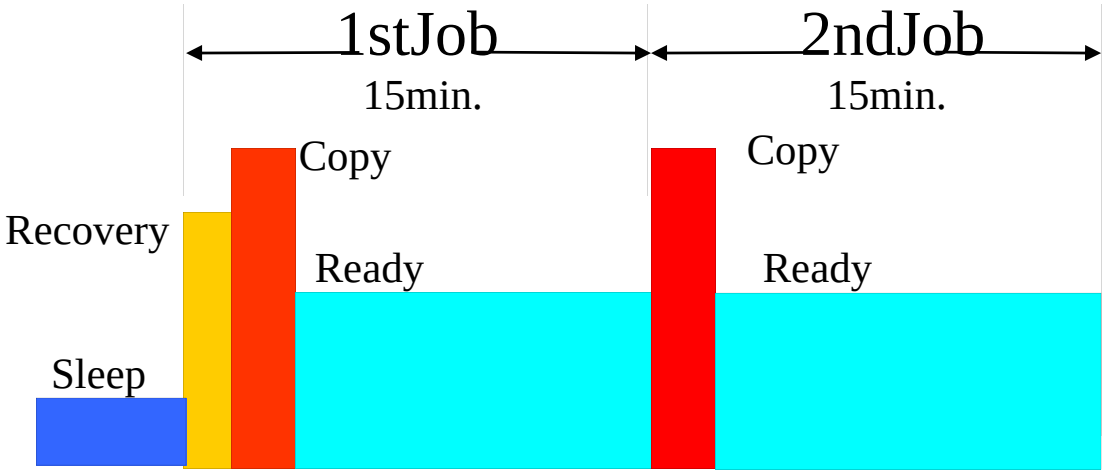
Fig.2 Temperature characteristic of new toner

Monochrome MFD



New Technology including toner realized big improvement.

Fig.4 TEC power profile

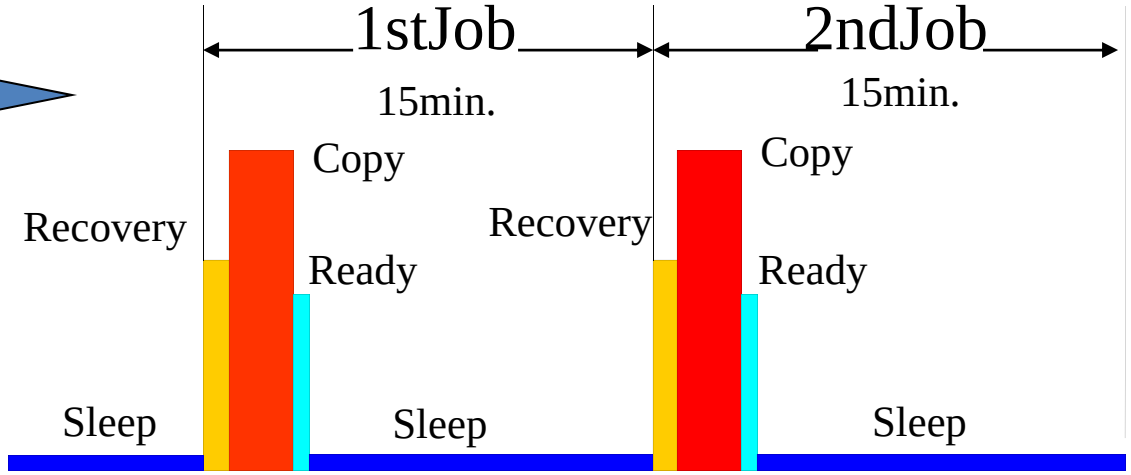


Big reduction of warm-up time

Toner melting at significantly lower temperature

New Fusing Method

- **Heat Roller fuser with reduced thickness**
- **Belt fuser**
- **ＩＨ fuser**
- **Free Nip Belt fuser**



Almost no area of further energy reduction for top runner model → Limit